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### Saccharated Casein: a new Emulsifying Agent.

MR. LÉGER some time ago announced that he had discovered a new emulsifying agent, namely, a compound of casein and sugar, regarding which we gave a brief note in one of our preceding numbers. We have now received a more detailed account of its mode of preparation and use (partly in *Bulletin Commercial*, 1887, No. 7) from which we take the following.

The first step is the preparation of the "lactoserum." The second operation involves the isolation of the casein, its conversion into the soluble variety, and finally, the preparation of the saccharate.

1. *Preparation of the "Lactoserum."*

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|---|---|
| Cow's Milk | 1 gallon |
| Water of Ammonia | 2 fl. oz. |

Heat the milk to 40° C. (104° F.), add the ammonia, and pour the mixture into a funnel (or funnel-shaped vessel) provided with a stop-cock, or the neck of which bears a piece of rubber tubing with pinch-cock. After 24 hours, the whole of the fat will have risen to the surface as a creamy layer. The lower liquid, rendered opalescent by the presence of mineral salts (phosphate and carbonate of calcium) and by a small quantity of butter, is then gently withdrawn. It constitutes the "lactoserum" of G. Quesneville, slightly modified.

2. *Preparation of the Saccharate of Casein.*

| | |
|---|---|
| "Lactoserum" | of 1 gall. of milk |
| Bicarbonate of Sodium | q. s. |
| Sugar, in fine powder | q. s. |
| Acetic Acid | q. s. |

Precipitate the lactoserum in the cold by means of acetic acid, wash the precipitate by decantation with water at between 35° and 40° C. (95° to 104° F.), collect it upon a wet strainer and press it. In the resulting cake determine the quantity of dry casein, by drying a small weighed portion (say 1 to 2 grammes) in a drying oven at 110° C. (230° F.). Now triturate the damp cake of casein with 3¼ oz. of powdered sugar and with 8 *parts* of bicarbonate of sodium for every 100 *parts* of casein calculated as *dry*. Under the influence of a prolonged trituration, and in consequence of the presence of the bicarbonate, the casein swells up and becomes soluble in water. Next, more powdered sugar is gradually added until this amounts to 9 *parts* for every 100 parts of casein calculated as dry. After the mass has been long and strongly pounded, it acquires the consistence of a lozenge paste which is divided into small fragments, and then dried either by exposure to the air, or in a stove, at a temperature of 25° to 30° C. (77° to 86° F.). After complete drying, it is powdered and the product passed through a sieve which should not be too fine.

When the moist casein is triturated with the bicarbonate of sodium alone, it is seen to swell up, to change from an opaque to a translucent condition, and to assume a consistence of firm jelly, resembling a thick mucilage of tragacanth. In this condition, the casein does not mix readily with sugar. But if the trituration is performed in the presence of a little sugar, the admixture of the remainder of the sugar presents no difficulties.

This saccharate of casein may be kept for any length of time. The author has had some on hand for three years, without its showing any alterations.

Saccharate of casein is adapted for emulsifying, easily and quickly, all sorts of substances. The resulting emulsions are very stable; and those prepared from oils are perfectly white. The fat globules of the emulsions are exceedingly small, smaller even than those of milk. By following the below-given instructions, uniform success will be obtained, according to the assurance of the author. Only *one* point is of importance, namely, *never to change* the proportions between the oil, the saccharate of casein, and the water, as the author has found those given by him to be the most advantageous.

The substances which may be emulsified by this new agent are:

1. Fatty Oils.
2. Essential Oils.
3. Balsams and Turpentines.
4. Resins and Gum-Resins.
5. Resinous and Gum-resinous Tinctures.

The following examples are given by the author:

1. "*Looch Huileux*" (Codex); or *Emulsion of Sweet Almond.*

| | |
|---|---|
| Oil of Sweet Almond | 15 parts |
| Saccharate of Casein | 15 " |
| Water | 5 " |

With the Saccharate of Casein and the water make a mucilage, with which the oil of almond is gradually incorporated; then add slowly

| | |
|---|---|
| Water | 95 parts |
| Orange Flower Water | 15 " |

The product should weigh 150 parts. In proportion as the oil is added to the mucilage of the saccharate, it will be noticed that the mixture acquires consistence, and this is a sign that the operation progresses satisfactorily, and that the oil will not separate, even when water is added rather carelessly.

2. *Emulsion of Castor Oil.*

| | |
|---|---|
| Castor Oil | 30 parts |
| Saccharate of Casein | 30 " |
| Water | 10 " |

Proceed as in the preceding case; then add

| | |
|---|---|
| Water | 100 parts |
| Cherry-laurel Water (Codex) | 5 " |

These emulsions contain no syrup, because the sugar already contained in the saccharate serves the same purpose.

3. To emulsify the substances named in the three last-named classes (see above), the following general directions will be sufficient:

*a.* 10 grammes (160 grains) of the saccharate will generally suffice for an emulsion of 125 to 150 grammes (4 to 5 fluidounces).

*b.* The amount of water should be 1 part for every 1 part of the saccharate.

*c.* The substances to be emulsified should be previously dissolved in a small quantity of 90° alcohol, the exact amount depending upon the nature (consistence) of the substance. For resins and gum-resins, camphor, balsam of Tolu, etc., this amount should be ten times that of the substance. The strongly resinous tinctures, such as those of Tolu, benzoin, etc., should be mixed with their own weight of alcohol; the same is to be done with balsam of copaiba. For turpentines, 2 parts of alcohol are to be used for every 1 part of the former. And in the case of essential oils, 4 parts of alcohol will be required for every 1 part of oil.

It should be remarked here that, since the resins often possess acid properties, they may coagulate the casein.

This may be avoided, however, by adding to the preparation a little bicarbonate of sodium, which must, of course, be adjusted to the necessity of the case. A little excess of alkali does no harm, however, and since it is, in fact, preferable to adopt a uniform quantity, the author recommends to use, in the case of resins, always about 4 grains of bicarbonate of sodium for every 4 or 5 oz. of emulsion. As an example, the author gives a formula for

3. *Emulsion of Copaiba.*

| | |
|---|---|
| Copaiba | 25 parts |
| Alcohol | 25 " |

Mix in a vial holding 5 fl. oz.

Dissolve on a water-bath

| | |
|---|---|
| Saccharate of Casein | 10 parts |
| Bicarbonate of Sodium | 0.2 " |
| Water | 10 " |

and pour the solution into the vial containing the Copaiba and Alcohol, and shake forcibly. The emulsion will form at once; then add, in succession,

| | |
|---|---|
| Syrup of Tolu | 25 parts |
| Peppermint Water | 40 " |

Emulsions with balsam of Tolu, benzoin, ammoniac, camphor, tar, turpentine, oil of turpentine, etc., are prepared in the same manner.

### Potelin.

POTELIN is the name of a mixture prepared from glue, glycerin, and tannic acid, so named after a certain Mr. Potel, who is said to have originated it. The editor of the *Rundschau* (Prag) states that such stoppers are probably elastic, resistant, and probably cheap. The proper proportion would have to be determined by experiments. The mass should be of such a nature that it can be cast in form of stoppers.

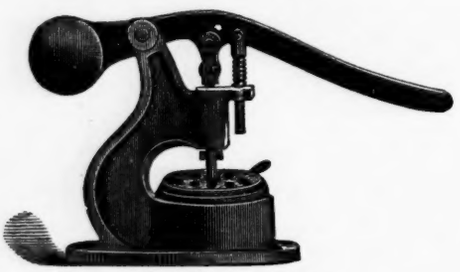
*Note.*—We have published the formula of a bottle-glue, composed of glue, glycerin, and tannic acid, already in 1884 (AM. DRUGG., 1884, p. 37). We have used this a number of years for sealing such bottles as contained liquids which would dissolve the usual sealing materials, such, for instance, as chloroform, disulphide of carbon, etc. The idea of casting it in form of stoppers may turn out to be practical.—ED. AM. DR.

### "Stenocarpine," a new local Anæsthetic.

DR. J. HERBERT CLAIBORNE, Jr., reports in the *Medical Record* of July 30th that he made experiments with the aqueous solution of an alkaloid extracted by Dr. Allen M. Seward, of Bergen Point, N. J., from the leaves of a tree found in the Southern States, which had been accidentally discovered to act as a local anæsthetic. The way in which this was first observed was as follows: A veterinary surgeon, Mr. M. Goodman, while travelling throuhg West Feliciana Parish, La., had occasion to apply a poultice to the fetlock of one of his horses. Having none of the customary means at hand with which to make it, he raked together a number of leaves from the ground, and having saturated them with hot water, applied the mass as a poultice to the inflamed part. After the swelling had arrived at the proper condition, he made a free incision into the part without the horse giving any evidence of pain. It occurred to him that the leaves might have anæsthetic properties. And a few weeks after, when he happened to have a chance to try them again, the same result was obtained.

Dr. Claiborne found that 2 drops of a 2-per-cent solution of the alkaloid prepared by Dr. Seward from the leaves produced anæsthesia in the eye of a rabbit, which lasted for about 30 minutes (exact data are given in the original paper). There was also dilatation of the pupil, which was greatest after 20 minutes. Dr. Claiborne also experimented with it on man, and actually performed the excision of a sebaceous tumor on the forehead of a patient in the Northwestern Dispensary without discomfort to the patient.

He thinks that in its effects upon the eye it seems to



Mylius' tablet-making machine.

stand midway between cocaine and atropine. Its anæsthetic effects last about as long as those of cocaine; its mydriatic effect is greater than that of atropine, while its paralyzing effect upon the muscles of accommodation is perhaps as great as that of atropine, reaching its maximum effect in about 6 or 7 hours, and disappearing rapidly thereafter.

Dr. Seward has provisionally named the alkaloid *stenocarpine* from the resemblance of the tree furnishing it to *Acacia stenocarpa* (*Med. Record*, August 13th).

Dr. Herman Knapp also relates his experience in the *Medical Record* of August 13th. His results confirm those of Dr. Claiborne.

### Note on Antifebrin or Acetanilide.

V. DELLA CELLA communicates some results of experiments with acetanilide or antifebrin.

A warm solution of acetanilide is colored red by ferric chloride, and somewhat darker red by diluted chromic acid. Many other organic substances furnish the same tints. If it be treated, dry, with concentrated sulphuric and nitric acids, it is dissolved without change; treated with arsenic, sulphuric and nitric acids, and warmed, it yields a red color. The following reaction appears to be the most interesting: On pouring upon a few milligrammes of acetanilide 2 or 3 drops of solution of nitrate of mercury, and gently warming, the acetanilide is dissolved; on now adding 2 to 3 drops of sulphuric acid of 66° B., an intense blood-red color makes its appearance. This reaction takes place with as little as 1 milligramme, and it is not interfered with by the presence of indifferent substances, such as starch. Nevertheless, it is not restricted to acetanilide, but is also produced by resorcin, phenol, salicylic, tannic, and gallic acids, thymol and benzoic acids.

In order to extract acetanilide (antifebrin) from the urine, Yvon's method may be employed, namely, shaking the urine with chloroform and evaporating the chloroformic solution. Ether furnishes the same results, if urine is used in which acetanilide has been purposely dissolved. But the urine of patients who had taken as much as 8 to 30 grains of acetanilide furnished negative results. Hence it may be assumed that the substance is decomposed in its passage through the organism. This latter statement, however, is in conflict with the observations of the discoverers of the antipyretic action of acetanilide, Drs. Cahn and Hepp.—*J. de Ph. et Chim.* and *Chem. Centralbl.*, No. 24.

### MACHINE FOR MAKING COMPRESSED TABLETS OR TROCHES.

DR. ERNEST MYLIUS, of Leipzig, in conjunction with W. Martin, has devised a new handy machine for turning out compressed tablets or troches, which is illustrated in the accompanying cut. It has the form of a lever punch, fitting into a hole in the bed-plate. The hole forms the receptacle for the damp mass which is to be compressed. At the bottom of the plate there is a strong slide by means of which the lower orifices of the holes may be closed. After the holes are filled with the mass, and the excess has been removed with a spatula, the punch is depressed and the contents of the corresponding hole thereby compressed into a firm tablet. The punch is then slightly raised, the slide below the bed-plate drawn out, and the tablet then pushed through by again depressing the punch.

The machine, with a single stamp, is sold at Leipzig for 27½ marks.—After *Pharm. Handelsblatt*, May 11th.

### Purification of Sulphuretted Hydrogen Containing Arsenic.

THE attention of chemists has long been directed to the necessity of insuring the absence of the volatile arsenic compounds in the current of hydrosulphuric acid gas used in forensic investigations or in accurate analyses. The usual substance from which the gas is generated, viz., sulphide of iron, is often found to be contaminated with traces of arsenic. Hence it has been proposed to abandon this for delicate operations, and to employ another sulphide, such as calcium sulphide which would absolutely exclude the presence of arsenic.

Only one method has so far been proposed, viz., by Von der Pfordten, for depriving sulphuretted hydrogen gas, when prepared from sulphide of iron, of any arsenic it may contain. This is accomplished by causing the gas to pass over commercial sulphide of potassium, which must, however, be kept at a temperature between 350° and 360° C., which is not very convenient.

Oscar Jacobsen has now devised a method by which this may be accomplished in the most simple manner.

This method is based on the fact that arsenetted hydrogen and iodine, when coming in contact even at ordinary temperature, are converted into arsenious iodide and hydriodic acid, while sulphuretted hydrogen has no effect upon solid iodine or iodine dissolved in strong hydriodic acid.

All that is, therefore, necessary for purifying the sulphuretted hydrogen of arsenic is to conduct it, previously somewhat dried, over solid iodine before it is washed with water.

The author quotes the following experiment:

Sulphuretted hydrogen was generated from 80 Gm. of commercial sulphide of iron and a quantity of arsenide of iron, prepared by heating together 15 Gm. of powdered iron with 1.5 Gm. of arsenic. For decomposing these, 480 Gm. of dilute sulphuric acid (1:5) were used, which were purposely contaminated with 0.5 Gm. of arsenious acid. The generated gas was made to pass, in a rapid stream, a chloride of calcium apparatus, and then three successive glass tubes, each charged with 5 Gm. of coarsely powdered iodine, the latter forming in each tube a column of about 6 cm. in length, kept in place by bunches of glass wool. The gas issuing from the last tube was conducted into warm, pure fuming nitric acid, and the whole operation was terminated in one and one-half hours. The sulphur remaining unoxidized in the acid was then completely oxidized by heat. The sulphuric acid, after the nitric acid had been dissipated, was found absolutely free from arsenic. On examining the three columns of iodine, it was found that only the first one contained any arsenic, none of the latter reaching either the second or the third.

In practice it is unnecessary to use so much iodine. The author recommends to use two or three grammes, which are to be placed, in coarse powder, into a narrow glass tube of 30 or 40 Cm. in length. It is best to divide the quantity into several portions, to be separated and held in place by little pellets of glass wool.

In forensic analyses it will be necessary to furnish a positive proof that the sulphuretted hydrogen employed has been thoroughly freed from arsenic. This may be accomplished by joining to the first tube a second, shorter one, likewise containing iodine. At the end of the operation, this is sealed at both ends in the flame, and preserved for future examination.

It is not advisable to dry the iodine thoroughly, since it is of decided advantage if the solid particles of iodine become covered during the reaction with a thin layer of a solution of iodine in hydriodic acid.

The small quantity of vapor of arsenic which is carried along with the sulphuretted hydrogen is arrested in the wash-bottle in form of hydriodic acid.

If pure hydrogen gas is to be freed from arsenetted hydrogen, the current is conducted first over iodine in the same manner as before described, then over glass wool moistened with concentrated solution of iodide of potassium, and finally through solution of potassa.—*Ber. Deutsch. Chem. Ges.*, 1887, 1,999.

### STEAM-JET FITTER PUMPS.

THE principle of producing a vacuum by means of a jet of water or steam under pressure has long been applied to mechanical operations, such as pumping liquids, aspirating gases, rapid filtration, etc., etc. In the case of filtration for laboratory purposes, water pressure is usually employed. But when large quantities of liquid are to be filtered, and particularly when the liquid passes through the filtering medium only with difficulty, it is advantageous to replace the water by a jet of steam. Koerting Brothers, the original manufacturers of the steam-injectors, have put on the market a special apparatus for this purpose, which is illustrated in the accompanying cut.

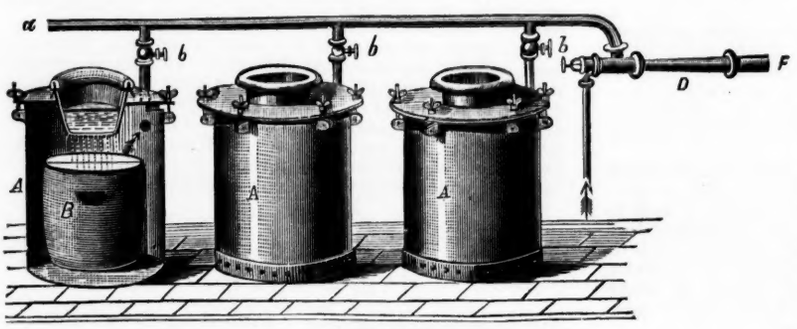
The tube *a*, *D* and *F* is intended for aspirating and carrying off the aspirated air. At *b* is a steam-valve, by opening which, a jet of steam, issuing from a fine opening, is projected into the tube *D*, causing the production of a partial vacuum in the tube *a* and the closed vessels with which this communicates. *A*, *A*, *A* are cylindrical vessels provided with removable and tight-fitting covers, in the centre of which are placed the filters. Inside of the vessels are placed receivers to catch the filtrate. When one or more of these vessels has been connected with the exhaust, and the corresponding valve at *b* has been opened, filtration proceeds at a rapid rate, but care must be taken that the filters are always kept full enough to prevent air being aspirated directly from the exterior. When one or the other ceases to operate properly, it may be shut off from communication with the exhaust pipe by closing the valve *b* without disturbing the remainder.

The steam-jet or injector may be obtained in this country separately, and the aparatus constructed and put together by any machinist.

### Qualitative Test for Boron in Milk and Similar Complex Liquids.

KRETSCHMAR describes the following simple method by which the presence of boron—whether added in form of boric acid or of borax—may be detected in milk or similar liquids, in which it is usually impossible to detect boron by the simple flame test, after incineration.

The sample of milk, etc., is first thoroughly shaken so as to distribute through it any deposited borate that might be present. Then remove 5 or 6 C.c. of the liquid into a platinum crucible and evaporate it over a small flame to about one-third. Next add 5 or 6 drops of strong hydrochloric acid to liberate any boric acid that might be in combination, and hold over the crucible the non-luminous flame of a Bunsen burner in an oblique position. If boric acid is present, the intense characteristic green color imparted by boron will gradually become visible in the flame. This lasts until inflammable vapors are given out by the heated residue. As soon as these vapors take fire, the green color is suppressed. The volatile evolution of the boron, however, through the high temperature and the addition of the hydrochloric acid is so complete, that in most cases the color of the flame ceases to be green before the inflammable vapors ignite.




Steam-jet filter pump.

This reaction is exceedingly sharp to detect boron, but it does not permit to discriminate between boric acid and borax, either of which may have been originally added to the milk.

NOTE BY ED. AM. DRUGG.—It would be worth while to find out whether the process could not, after all, be used for discriminating between boric acid and borax. If the flame coloration is not obtained in *one* sample when following the above directions, *with omission of the hydrochloric acid*, and if it then be obtained from a second sample of the same milk after acidulation with hydrochloric acid, this will be conclusive evidence that borax or some borate was present. Whether free boric acid would at once show itself by the flame test, without any addition of hydrochloric acid, would have to be proven by experiment. On the face of it, we see no reason why it would not do so. We have no time just now to try it, but leave it to some of our readers, with the hope that they will report to us the result of their experiments.

### STILL FOR ESSENTIAL OILS.

IN an article on essential oils, Mr. Thomas Christy, of London (in his *New Commercial Plants and Drugs*, No. 9), makes the following remarks regarding a practical still for preparing essential oils on a small scale:

"In order that any of my readers who may wish to start, in a small way on their estates, the process of distilling, I have searched for the most simple and reliable apparatus for the purpose, and one of the best I have met with is that manufactured by Mr. Broquet, of Paris, of which I reproduce a block kindly lent to me.

"This apparatus is constructed to meet the wants of those whose desire is to distil economically, without too great an outlay of capital and labor, all kinds of oils. It is capable of holding 12 litres, and can be heated by any kind of fuel. One great advantage claimed for it is that it can be worked over an ordinary stove or kitchen fire, and thus save the expense of a separate heating apparatus.

Broquet's still.

"Any one desirous of becoming fully acquainted with the distillation of oils and essences should procure a copy of the *Traité détaillé et pratique de distillation à l'usage des familles*, by Valyn. In this work, full particulars are given as to the best and easiest method for the distillation of oils and essences, and for the preparation of the different kinds of raw material for the still."

### On Duboisine.

PROF. LADENBURG some years ago reported that the alkaloid *duboisine* (from *Duboisia myoporoides*) was nothing else than impure hyoscyamine.

Since then, Prof. Harnack has found that the therapeutic action of the alkaloid was much more powerful than that of hyoscyamine, and that, therefore, the identity of the two alkaloids was more than doubtful.

Ladenburg, in conjunction with F. Petersen, has now reinvestigated the question, operating upon a sample of duboisine received from Merck. He finds it now to consist of *hyoscine*, which would account for its great activity. —*Ber. d. Deutsch. Chem. Ges.*, 1887, 1,661.

### Note on the Specific Gravity of Wax.

DIETERICH has pointed out that the usual method of determining the specific gravity of yellow or white wax is not reliable. Very commonly a piece is cut or broken off from a cake, and either examined at once or after being kneaded. In these cases, the specific gravity is usually found to be too low, and still lower if the wax has been kneaded for only a short time, say one minute, while a longer kneading causes it to be again a little higher. He states that very constant and reliable figures are obtained by gently melting drops off from a piece of the wax held near a flame, and allowing the melted drops to fall into water, where they must remain for twenty-four hours, so as to reach their maximum density. They are then tested by being thrown into a series of vessels containing alcohol, varying in specific gravity from 0.960 to 0.967. In whichever of these the droplets of wax remain suspended, the specific gravity of this alcohol is that of the wax.

With pure yellow wax the experiments always gave a specific gravity of 0.9625, and in the case of white wax it never exceeded 0.970. The melting point of yellow wax was found at 63.5° to 64.5° C., and the congealing point 2.50° C. lower,

The German Pharmacopœia demands that when 1 part of yellow wax is boiled with 300 parts of alcohol, not more than a very small *brownish-yellow* residue should remain.

Dieterich points out that perfectly pure wax, when thus boiled for several hours, dissolves completely; impure wax, on the other hand, leaves behind a *gray* residue.—*Pharm. Centralh.*, No. 16.

### The Alkaloids of Coca Leaves.

ACCORDING to the observations I have made in reference to this subject, I have not become acquainted with anything to support the opinion put forward by Stockman, that amorphous cocaine is a solution of true cocaine in hygrine, although the amorphous base may contain some hygrine as the result of decomposition of some one or other coca base, and though hygrine may be separated from it by continued distillation with water, owing to its gradual formation, until the whole of the amorphous base is decomposed. Since the dilute solution of hygrine in hydrochloric acid has a strong blue fluorescence, this character furnishes a means of ascertaining whether or not hygrine is present in coca leaves. For this purpose it is only requisite to moisten the finely divided leaves with ammonia, and shake with ether, then to extract the bases taken up by shaking the ether solution with dilute hydrochloric acid. When sound leaves are operated upon in this way, the acid solution obtained presents at first no fluorescence, but after a time it gradually becomes distinctly fluorescent, showing that hygrine is a product of subsequent decomposition.

Hygrine is separated from solution in acids by ammonia or caustic soda solution as a colorless oil, with a basic reaction and a peculiar odor which crude cocaine sometimes possesses. Its solutions in dilute acids present a fine blue fluorescence. The solution in excess of hydrochloric acid gives, when mixed with chloride of lime solution and excess of ammonia, only a milky turbidity, but no coloration. A solution of the hydrochlorate also gives no color when mixed with ferric chloride, with gold chloride it gives a yellow oily precipitate, and with platinum chloride a pale yellow crystalline precipitate.

As regards the amorphous portion of the coca bases which can be easily separated from cocaine, the above fluorescent character of hygrine admits of the presence or absence of this base being ascertained. The material I operated upon contained no hygrine, and it gave a platinum salt that yielded in two experiments 18.26 and 18.44 per cent of platinum, the amount of water being respectively 5.00 and 5.50 per cent. These results would correspond satisfactorily with the formula

$$(C_{17}H_{21}NO_4)_2PtCl_6H_2+3H_2O$$

according to which the amorphous base would appear to have the same composition as cocaine. It is, however, evident that this amorphous material is not homogeneous, since I was able to separate from it by fractional precipitation a well-defined base, to which I have given the name of "cocamine," but I must add that at present I have only been able to obtain this base from a small-leaved variety of coca.

This new base has the same empirical formula as cocaine, $C_{17}H_{21}NO_4$. It dissolves readily in alcohol, ether or chloroform, and on evaporating these solutions, it remains in amorphous condition. It dissolves with difficulty in petroleum spirit and in water. Dilute acids dissolve it readily, and ammonia produces in these solutions a voluminous flocculent white precipitate that appears crystalline under the microscope. The hydrochlorate of this base, $C_{17}H_{21}NO_4HCl$, is amorphous, has a neutral reaction, and is readily soluble in water and alcohol, but these solutions soon become acid. When dried at 120° C. the salt continues to lose weight, and eventually becomes no longer soluble in cold water, but communicates to it an acid reaction. On the contrary, the crystalline platinum salt $(C_{17}H_{21}NO_4)_2PtCl_6H_2+4H_2O$ only loses its water of crystallization at that temperature.

Cocamine melts at about 80° C., and it decomposes when heated a little above 100° C., or when boiled with an alcoholic solution of baryta. In this latter case, an acid is produced which crystallizes from ether in needles like benzoic acid, but does not appear to be identical with it, since the ammonia salt gives with lead acetate a white flocculent precipitate, and with silver nitrate a white milky turbidity which lasts in a remarkable way for several weeks before a precipitate is formed.

The basic product formed in this decomposition does not appear to be ecgonine, for though dissolving readily in water, communicating to it a basic reaction, and crystallizing on evaporation in long broad needles, I did not succeed in obtaining from this base the characteristic platinum salt of ecgonine. The salt I obtained dissolved readily in water and in hot alcohol, separating from the latter solution only in translucent globular masses.

In confining myself for the present to the communication of these data, I wish to add that I purpose continuing the investigation of the subject and especially that of hygrine and cocamine.—O. HESSE in *Pharm. Journ.* July 23d.

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**Camphor in powder** is (according to a German patent) obtained by mixing the crude camphor with 5 per cent acid phosphate of calcium, which combines with the iron contained in the camphor as an impurity, and the mixture is sublimed in an iron retort. The vapors escape in the upper portion of a large condensing chamber furnished with an exhaust pump, and are condensed in the form of a light powder, which may also be compressed into blocks.—*Chem. and Drugg.*

### Acetphenetidin, Antithermin, and Antipyrine as Antipyretics.

ACETPHENETIDIN has been recently experimented with in the city hospital of Vienna, and shown to be an efficient antipyretic. Upon the body in health it exerts no action whatever, but in febrile affections, even small doses of from 4 to 8 grains produce a notable lowering of temperature. In full doses, it causes a fall of 2° C. (3.6° F.), and this is brought about slowly, requiring from 4 to 6 hours. No bad or disagreeable effects have so far been observed in the large number of cases in which it has been tried.

Acetphenetidin is an inconvenient name for prescribing, and, if actually introduced into medical practice, will no doubt be rechristened. It is prepared in the following manner:

Phenol is treated with nitric acid, which results in the production of both ortho- and paranitrophenols. The latter is separated and transformed into an ethyl ether, and the latter is then subjected to reducing agents, by means of which the nitrous constituent is reduced to an amide-body, the resulting substance being the ethyl ether of para-amido-phenol,

$$C_6H_4.NH_2.OC_2H_5.$$

This latter substance has received the name *phenetidin*. When this is treated with glacial acetic acid, para-acetphenetidin is formed:

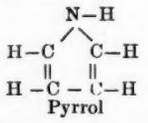
$$C_6H_4.NH(CH_3.CO).OC_2H_5,$$

and this is simply called *acetphenetidin*.

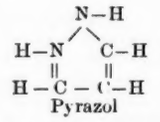
*Antithermin* is a clinical or therapeutic name of another new chemical compound which has also been found to possess antipyretic properties. It is a compound of hydrazin and levulinic acid. Whether it has a future as a medicinal agent remains to be seen.

The last-mentioned substance puts us in mind to inform our readers that the most universally used modern antipyretic, namely, *antipyrine*, is a close relation to it. In fact, Dr. Knorr, the discoverer of antipyrine, has been compelled, by a more extended study of the substance, to alter his views regarding its constitution. We quote the following abstract from his original paper contained in Liebig's *Annalen*, 238, 146 etc. (after the *Pharm. Zeitung*).

While Dr. Knorr regarded antipyrine originally as a derivative of a hypothetical base, *chinizine*, he now holds it to be a derivative of pyrazol, a body which is closely related to pyrrol.



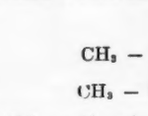
Pyrrol



Pyrazol

When phenylhydrazin ($C_6H_5.NH.NH_2$) is mixed with ethyl diacetic acid ($CH_3.CO.CH_2.COOC_2H_5$) water is separated, and an oily product is formed, which is probably phenyl-hydrazin-acetic ether, which, when heated, separates into alcohol ($C_2H_5.OH$) and a derivative of pyrazol, designated as phenyl-methyl-pyrazol.

This latter substance is the same which has formerly been called "monomethyl-chinizin." If this is treated with iodide of methyl, in solution in methyl alcohol, *antipyrine* is formed in this way, that at first one molecule of $CH_3I$ (iodide of methyl) is added. The resulting addition-product, on heating, loses hydriodic acid (HI) and hydriodate of antipyrine is formed, the probable constitution of which would then look as follows:




And from this, antipyrine is formed by the elimination of hydriodic acid, and substitution of hydrogen.

### Preservation of Soft Vulcanized Rubber.

ARTICLES made of soft vulcanized rubber, such as tubing, stoppers, etc., may be preserved by keeping them in tightly-closed tin boxes containing a sponge or bunch of matting moistened with benzin. Of course, this must not come into actual contact with the articles.

Rubber goods may be rendered more durable by coating them with a thin layer of vaseline.

Even when soft rubber goods have become rather hard, they may be restored—provided they have not become full of fissures—by coating them thinly with vaseline, and cautiously warming them over an alcohol lamp, when the first coat has been absorbed the process may be repeated.

Another method recommended for restoring hardened rubber articles is to place them into a mixture of 1 volume of water of ammonia, and 2 volumes of water, for a period varying between five and thirty minutes, proportionate to the degree of hardening they have undergone. —*Zeitsch. f. Instrumentenkunde.*

### GLASS STOP-COCKS WITH OBLIQUE BORE.

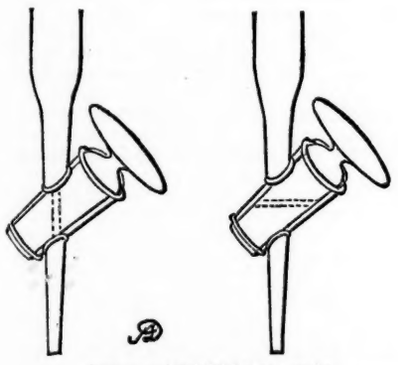
In ordinary, straight-bored glass stop-cocks. it will often happen that a gritty particle caught by the edge of the bore will be carried around the interior wall of the neck in which the stop-cock sits, and produce a faint scratch. If this happens repeatedly, a fine groove will be formed, which will eventually cause the stop-cock to leak. This is prevented by the plan adopted by Greiner and Friedrichs of Stützerbach, who manufacture stop-cocks with oblique bore. In the accompanying illustration the stop-cocks are bored obliquely, but the neck in which they turn is fused obliquely upon the burette. Some time ago, the same manufacturer described a similar kind of stop-cock, but the necks were at right angles with the burette, as usual (see our June number, page 105). If any solid particle should get between the bearings, it would be carried each time in a different direction; hence it would not be likely to gradually grind a regular groove.—*Zeitschr. f. anal. Chem.*, 1887, 48.

### A NEW SIPHON.

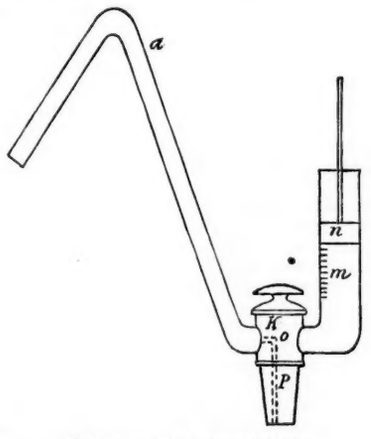
P. Raikow and N. Prodanow have devised the siphon here illustrated. The stop-cock *K* is connected, on one side, with the longer leg of the siphon proper, and on the other with a cylinder *m*, which may be graduated, and in which a piston *n* is fitted. The stop-cock is bored in two directions—diagonally across *o*, as well as downwards, *p*.

The siphon is started by turning the stop-cock so that only its diagonal bore. which connects the long leg of the siphon with the cylinder, comes into play. The short leg of the siphon having been immersed in the liquid, the piston in the cylinder *m* is drawn up until the liquid has passed over into *m*. Then the stop-cock is turned so as to bring the perpendicular bore *p* into play, when the liquid will continue to be drawn over.

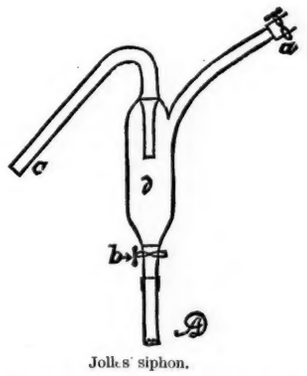
The construction of this siphon also permits the accurate measurement of definite quantities of the liquid when drawn off by the siphon. All that is necessary is to have the cylinder *m* graduated. By depressing the piston, after *m* has been filled, and the stop-cock *K* has been turned so that it cannot communicate with the long leg of the siphon *a*, any desired quantity of the liquid within the capacity of the graduated portion may be forced out. —*Chem. Zeit.* and *Chem. Centralbl.*



Greiner and Friedrichs' stop cocks.




Raikow and Prodanow's siphon.




Jolles' siphon.

### A NEW FORM OF SIPHON.

A. Jolles recommends the form of siphon shown in the annexed figure. Both the exit-tube and the suction-tube are closed with stop-cocks at *b* and *a*. The siphon is started by closing *b*, opening *a*, and aspirating liquid through the tube *c* which is immersed in the latter, until the expanded portion is filled. On closing *a* and opening *b*, the liquid will continue to flow.—*Rep. anal. Chem.*, 1887, 15.

### Iodized Starch as an Antiseptic.

It being the iodine which is liberated from iodoform, subiodide of bismuth, and iodol which acts as a disinfecting agent, Mr. England advises the employment of iodized starch as a substitute. It seems to lack somewhat the power of the other agents mentioned, for the probable reason that in the case of all the others the iodine exists in the form of chemical union, and its liberation in the so-called nascent state renders it more active. In the form of iodized starch it is simply a mixture, or at most, a chemical union of low grade. The facility with which iodized starch can be prepared, however, to say nothing of the absence of disagreeable odor as compared with iodoform, recommends it for use in a large proportion of cases.

### Standardized Fluid Extract of Aconite.

Mr. Jos. K. Lilly read a paper on this subject, at the late meeting of the Indiana Pharm. Assoc., which illustrates the method used for establishing as well as controlling the alkaloidal standard of pharmaceutical preparations of vegetable drugs which are capable of being assayed. The following portion of his paper is of special and practical interest:

"Those who have had experience in titrating alkaloidal solutions by adding Mayer's solution* drop by drop, have experienced the difficulty of accurately arriving at the point at which precipitation is complete; it is this difficulty which the following method is designed to overcome:

"There has been placed before you everything necessary for a complete experiment, and I call your attention first to this solution, the strength of which is to be determined. This solution, measuring 100 C.c. represents 50 Gm. of ipecac, and was prepared by exhausting the powdered drug with alcohol by percolation, reducing the percolate to about 50 C.c., adding 100 C.c. of a 1% aqueous solution of sulphuric acid, carefully evaporating until all traces of alcohol were expelled, then adding water q. s. ad 90 C.c., adding a very little washed powered pumice stone, agitating and filtering through a plain paper filter, adding on some water q. s. ad 100 C.c. This gives us a clear solution which, if the manipulations are carefully conducted in every detail, perfectly represents the 50 Gm. of drug.

"The apparatus now necessary is, as you see, twelve test-glasses, six very small funnels with small plain filters, two burettes, one for the reagent and one for measuring the solution to be titrated.

"Now please note that we have here a solution of unknown strength of the alkaloid emetine, and the first step towards ascertaining its strength is to test a given quantity with the standard amount of the reagent, which is, that 5 Gm. of drug requires 4 C.c. of the reagent for complete precipitation of its alkaloid, hence we take 10 C.c. of this solution (representing 5 Gm. drug), and after diluting it with an equal volume of water, add 4 C.c. of the potassio-mercuric iodide solution. Allowing it to stand a few moments (in practice a much longer period), we filter off a small amount and adding a few drops of the reagent we are enabled to tell whether it is above or below standard. In this case, as you see, it runs above standard, so we take five more test-glasses and placing in each 10 C.c. of the solution and 10 C.c. water, we add to No. 1, 4.1; to No. 2, 4.2; to No. 3, 4.3; to No. 4, 4.4; to No. 5, 4.5 C.c. of Mayer's solution.

"Now, continuing the operation as in the preliminary test, we find that No. 2 yields a slight precipitate, while No. 3 gives no indication of uncombined alkaloid, so we accept as our result that 5 Gm. of drug requires 4.25 C.c.; or, if still greater accuracy is desired, a second series of tests, with amounts of the reagent running in the small fractions, between 4.2 and 4.3 C.c., might be made, but is hardly necessary.

"Accepting as our result 4.25 C.c., it is then a matter of simple calculation to determine how much fluid extract a given quantity of drug should produce In this case the drug runs over standard; a lot of equally good quality, apparently, might run under, thus illustrating the value of a standard.

"It is very essential for the successful use of this method that all assays of the same drug should be conducted under precisely the same circumstances and conditions, such as dilution of solution, strength of acid used, and length of time allowed to elapse before filtering off for further addition of reagent. These all vary more or less in assays of different drugs, but should always be the same in different assays of the same drug.

* Mayer's solution is prepared by dissolving 13.546 Gm. of mercuric chloride, and 498 Gm. of potassium iodide in enough distilled water to make 1 liter.—Ed. Am. Dr.

"As to the establishment of standards, the following table, showing twenty-six different assays of aconite root, will illustrate.

FLUID EXTRACT OF ACONITE ROOT.

"*Standard*—5 C.c. requires for complete precipitation of contained alkaloid 1.5 C.c. Mayer's solution. [A series of twenty-six assays is now quoted, showing the fluctuations.]

"The average of these experiments being 1.496, the standard 1.5 C.c. was adopted, and has proven to be an excellent one after three years' recognition. The manipulations in these assays were precisely as demonstrated.

"It is hardly necessary to burden this paper with detailed tables of all drugs standardized in this manner, so below all are given with the standards adopted in one table:

| DRUG. | 5 C.c. Fluid Extract requires for complete precipitation of contained alkaloid. |
|---|---|
| Belladonna Leaves | 2.4 C.c. Mayer's Solution. |
| Belladonna Root | 2.4 " " " |
| Coca Leaves | 3 7 " " " |
| Colchicum Root | 1.75 " " " |
| Colchicum Seed | 1.75 " " " |
| Gelsemium | 1.6 " " " |
| Hyoscyamus | 1.8 " " " |
| Ipecac | 4. " " " |
| Stramonium Leaves | 2.4 " " " |
| Stramonium Seed | 2.4 " " " |
| Veratrum | 2.1 " " " |

### Determination of Melting Points.

WHILE it is comparatively easy to determine the exact melting point of chemical substances of absolute homogeneity and purity, it is on the other hand often difficult to obtain more than approximate figures in the case of non-homogeneous substances or commercial products, as for instance, paraffin, fats in general, vaseline, etc. One cause of the variation is the lack of absolute transparency of the substance, which renders the reading of a thermometer suspended deep into the substance impracticable at or near the melting or congealing point. And another cause is the lack of a generally accepted system for determining it in such cases.

L. Weinstein, therefore, recommends to adopt as standard the system which is used in technical works, namely, to designate as *melting* point that degree of an accurately-tested thermometer at which the melted mass *begins to congeal*. Though this is not exactly correct, yet it has been customary for many years, and appears to be the only method in which personal errors can be excluded as much as possible. The congealing point is recommended because it begins at a sharply recognizable moment, and can generally be observed with the eye. In the case of paraffin and certain other bodies, moreover, the melting and congealing points are very close together, while in other fatty substances they are situated further apart. Fats being very poor conductors of heat, they are easily overheated during the melting.

In the scientific laboratory, the melting point of a substance is usually determined by introducing some of it into a capillary tube closed at one end, to heat the latter in a suitable bath, and then to read off the thermometer. This is an excellent method and is best done in the following manner: Collect some of the substance with the open end of the capillary tube, melt it, and then, by a sudden jerk, make it pass to the closed end of the tube where it will at once congeal. It is then introduced, together with an accurate thermometer, into a bath of a temperature high enough to melt the fat, the two tubes being frequently moved about so as to cause the liquid of the bath to have a uniform temperature. At the same time, the condition of the fat in the capillary tube is carefully observed. As soon as the first sign of a congelation is noticed, the temperature is read off. Successive experiments, made with different samples of one and the same substance, seldom differ by more than 0.1 to 0.2° C., provided that each was a true average sample. This is one of the chief conditions for success. And discrepancies are very often to be ascribed solely to the non-uniformity of the various samples taken from one and the same lot of a substance. For instance, in an apparently quite homogeneous cake of paraffin, only five centimeters in thickness, there were found no less than five zones, from above downwards, differing in melting point.

A good average sample may be taken in the following manner. Select a number of samples of different pieces of one lot, melt them together, stir well, and pour the mass into a square tin box (holding about 4 oz.) floating upon water. The cake in the box should have a thickness of five or six centimeters. On now pushing the open end of the capillary tube down through the mass, one may be sure to have a good average sample. [By the way, the melted cake should always be allowed to lie for several days before being used, as the melting point of many fats and similar bodies rises slightly during the first days succeeding its congelation.—ED. AM. DR.].

Weinstein rejects as entirely untrustworthy, in the case of crude fats or commercial products, the method in which a drop of mercury is observed at the moment of sinking through the melted mass, or when an electric alarm is established by means of mercury thus displaced and producing contact.

The author next cites the three principal methods which have come to his knowledge as being used and relied on in the chief industrial centres for determining the melting point of *paraffin*. They are as follows:

1. The method used at Halle (long in use): Allow a granule of paraffin to melt upon warm water, and observe at what degree of an accurate thermometer the melted drop is so far cooled that a skin forms on top of the droplet.

2. The American Method: Melt a sufficient quantity of paraffin in a beaker glass, allow to cool, and observe at what degree the mass shows the first signs of stiffening.

3. The Scotch or English Method: Melt the paraffin in a pot until it is completely melted, then stir with a thermometer until one-half of the mass has congealed again. The temperature of the mixture will remain for a short time stationary at this point. N. B. The bulb of the thermometer must always be completely covered by the melted paraffin.

The first and second of the above methods give as good results as the method by means of the capillary tube. The Scotch method yields results usually too low by about 2° C. or about 3.6° F.—*Chem. Zeitung.*

### Persian Opium.

AMONG articles of export from Persia, opium occupies the chief place. The yearly crop in and around Ispahan may be estimated at about 40,000 shahmans, equal to about 232 tons; and the planting of opium and its getting in gives occupation to a very great part of the population. The poppies are not cut before the beginning of June, and the juice is then brought to the market in copper vessels. As a rule, opium changes hands twice, and even oftener, before it comes into the hands of the exporter, and varies very much in quality, according to the soil in which it is grown—one of the most renowned districts being the village of Kupa, at a short distance east of Ispahan. London and Hong Kong are the chief customers, and the merchants prepare it according to the wants of those markets. Of late years, the planting of opium has more and more encroached on the grounds available for cultivation, owing to its yielding heavier profits to the cultivator than corn and other cereals. The quality of Ispahan opium is now much appreciated in foreign markets, and more attention is being paid to its preparation than formerly. We may take the annual exportation now to be about 2,500 cases of 10 to 11 shahmans each, which, at an average price of 200 tomans, gives the respectable total of 500,000 tomans, about £170,000. Of course prices vary very much, according to supply and demand. Last year the average price was about 21 tomans (nearly £7) for 1 shahman (13 lbs.) of prepared opium, whereas at the beginning of this year the price was 17 tomans (£5 10s.) for 1 shahman (13 lbs.), and now has risen to 19 tomans. The fluctuations in the prices are occasionally enormous. In one particular season (two or three years ago) prices rose from 17 to 25 tomans for the prepared drug, which means about 9 to 13 tomans in the raw or unprepared state. Persian opium now competes successfully with other descriptions (Turkey, Asia Minor, etc.) in London and Hong Kong, and it is a source of great wealth to this part of Persia. From Ispahan opium is also sent to Shiraz and Nezd, where it is mixed with the native drug grown in those parts, and thence exported to India and China. About a quarter of Ispahan opium is exported by English firms.

### Copying Drawings.

DRAWINGS of apparatus, plans, and indeed of any kind which are not executed in too fine lines, may be readily copied upon any kind of paper in the following manner:

Place the paper upon which the drawing is to be copied securely upon the original, and dampen the paper with a cotton rag saturated with benzol. The latter is absorbed by the pores of the paper and causes the latter to become as transparent as regular tracing paper, so that the drawing will become distinctly visible through it. The latter may then be traced in the usual manner, either with lead-pencil, or ink, or India ink, or water colors, the benzol offering no resistance to any of these agents. In fact, pencil or ink-marks applied to paper saturated with benzol appear to adhere to it much more strongly than to plain paper, so much so that it is quite difficult to remove even faint pencil marks afterwards with the rubber.

If the original is large, only a small section of the paper is dampened with benzol at one time. Should the volatile liquid evaporate before the drawing below the spot has been copied, it is merely necessary to redampen the latter.

When the work is done, the paper is left exposed for a short time, when the benzol will evaporate, leaving paper and drawing as they were before.

It need scarcely be added that only rectified benzol should be used for this purpose.—*Neueste Erfind. und Erfahr.*

### APPARATUS FOR DETERMINING THE SPECIFIC GRAVITY OF SOLIDS AND LIQUIDS.

P. RAIKOW and N. Prodanow recommend the apparatus here described.

A glass tube *a a'*, of the form shown in the cut, has its narrow leg graduated in cubic centimeters along its upper portion, while the other leg connects with a wider tube, the bottom of which is expanded to a bulb, which latter is intended to receive the substance of which the specific gravity is to be determined. If water is poured into the apparatus, it will stand at a somewhat higher level in the narrow leg, owing to capillary attraction. (See the corresponding levels *h* and *h'* in the cut.) Supposing that enough water has been poured in the apparatus—the proper quantity being easily determined or approximated, as will be seen presently—the solid of which the specific gravity is to be taken, is let down into the bulb-like expansion *b*, whereby the water in both legs will be made to rise. On now inserting a piston into the wider tube, and pushing it down until the confined air has caused the level of water to return to the same height at which it stood before the solid was introduced, the water in the narrow limb will thereby be correspondingly raised. The number of cubic centimeters by which the column of water in the narrow limb has been augmented represents the *volume* of the immersed solid, from which its specific gravity can be determined in the usual manner, that is by dividing its weight in air by the weight of the centimeters of water representing the increase of the narrower column. Instead of water, any other liquid may be taken, if the nature of the solid, which must remain undissolved, requires it. In this case, of course, the volume of the displaced liquid must be transcalculated for water.

If the spec. grav. of a *liquid* is to be taken, the apparatus is charged with a liquid which does not mix with that to be experimented with. The level of both columns having been marked, the whole apparatus is weighed. A little of the liquid to be examined is now poured into the wide tube, the apparatus again weighed, the surface of the liquid depressed by means of the piston (as in the case when solids are involved) to the former level, the increase in volume in the other leg noted. On dividing the weight of the liquid added by its volume, the specific gravity will be ascertained.—*Chem. Zeit.*, 1886, 1,556.

### A NEW SELF-ACTING WASH APPARATUS.

A VERY simple and practical apparatus for the automatic and continuous washing of precipitates has been devised by A. Wahl.

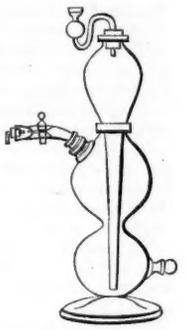
A flask *A* is provided with a triply perforated rubber stopper, carrying the air-tube *F*, the inlet tube *C*, and the siphon tube *G*. The apparatus is so placed that the end of the tube *G* is over the filter to be washed. The liquid with which the washing is to be performed may be kept in a reservoir in an elevated place, or, in the case of water, may be taken at once from the service pipe, the rate of inflow being regulated by a stop-cock, or by the pinch-cock *E*. The inflow of liquid through *C* is to be regulated so that the time required for filling the flask from *a* to *b* will be equal to the interval which it is desired to have between the successive refillings of the filter. Supposing water passing at a certain rate into the flask through *C*. It will gradually rise in the latter until the orifice of the air-tube *F* is covered, when the confined air will cause the water to rise in the tube *F* itself. As soon as the water in the latter has risen to the level of the bend in the siphon tube *G*, the latter will act and draw water from the flask until the orifice of the air-tube *F* is again exposed. The siphon therefore acts intermittently. The volume of liquid to be siphoned off at one time is easily regulated by raising or lowering the tube *F*, that is, by increasing or decreasing the column of liquid between the orifice of the siphon and the air-tube.—*Chem. Zeit.* and *Dingl. Polyt. Journ.*, 264, 84.

### An Improved Method of producing continuous or interrupted Currents of Gases.

THE ingenious but simple method devised by Clemens Winkler for producing either a continuous or interrupted current of chlorine gas from compressed cubes prepared of chloride of lime and plaster of Paris (described in our July number, page 127) has already been extended to other gases, namely, to sulphuretted hydrogen by R. Fresenius, and to sulphurous acid gas and oxygen by G. Neumann.

*Sulphuretted Hydrogen.*

This new method permits the employment of a sulphide, viz., sulphide of calcium, which insures the absence of arseniuretted hydrogen, a most important advantage. This sulphide may be prepared, according to Rob. Otto, in the following manner. Make a stiff paste from 7 parts of dehydrated gypsum, 3 parts of powdered charcoal, and 1 part of rye-flour, with a sufficient quantity of water, form the paste into balls or cylinders, dry them completely, and heat them to bright redness in a Hessian well-covered crucible. Fresenius recommends to triturate 4 parts of this sulphide of calcium intimately with 1 part of burned gypsum, and then to add enough water to produce a very stiff paste, which is transferred to flat, square paper-capsules and allowed to become firm. The cakes, which may be about ⅝ inch thick, are cut into cubes while still damp, and dried with a gentle heat. For laboratory purposes, these cubes answer sufficiently well, though it might be advisable to employ Winkler's method (see our July number) when making them on a large scale.

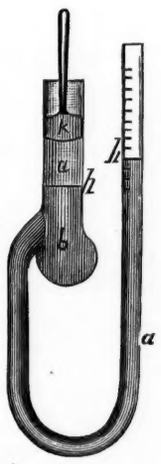


Kipp's apparatus.

For the generation of sulphuretted hydrogen gas from these cubes, a Kipp's apparatus may be used with advantage, dilute hydrochloric acid (1 vol. of acid of 1.12 sp. gr. and 1 vol. of water) being used for decomposition. The evolution of the gas then takes place easily and uniformly. The cubes retain their shape for a considerable time. After the sulphide of calcium has been dissolved, the gypsum falls to the bottom as a precipitate. The current of gas may be regulated without difficulty.—After *Zeitschr. f. Anal. Chem.*, 1887, 339.

*Sulphurous Acid Gas.*

G. Neumann makes a mixture of 3 parts of sulphite of calcium and 1 part of gypsum, which is made into a paste and formed into cubes in the manner already described.




Specific gravity apparatus.

Wahl's self-acting wash bottle.

Kipp's well-known apparatus is also recommended here for the generation of gas. A charge of about one pound of the cubes can furnish a current of gas lasting for about 30 hours, crude concentrated sulphuric acid being used for decomposing the mixture. In this case it would therefore appear that the use of sulphuric acid is no disadvantage. [Winkler uses hydrochloric acid, as he found that, in preparing chlorine gas from cubes containing chloride of lime and gypsum, sulphuric acid, when it combines with the lime of the chloride and thereby produces an outside layer of gypsum, fails to penetrate the cubes completely.] Neumann, in fact, states that he finds sulphuric acid an advantage, as no gypsum collects at the bottom of the apparatus through the disintegration of the cubes. One point he draws special attention to. In order to prevent waste of gas, no more sulphuric acid should be admitted at a time than is necessary to moisten the number of cubes required to evolve the desired rate of current.

*Oxygen.*

In the same manner, oxygen may be generated. For this purpose a mixture of 2 parts of peroxide of barium, 1 part of manganese dioxide, and 1 part of gypsum is made into a paste and into cubes as previously directed. For decomposition a dilute hydrochloric acid of the same strength as that used by Fresenius for sulphuretted hydrogen (see above) may be used.* Since there is a small quantity of chlorine given off together with the oxygen, the generated gas must be passed through a solution of an alkali.

It is not advisable, when making these cubes, to employ any starch or other adhesive substances with a view of rendering the cubes coherent.—After *Ber. d. Deutsch. Chem. Ges.*, 1887, 1,584.

These cubes will shortly be obtainable in the market here, their manufacture having already been undertaken.

* Such an acid has the spec. grav. 1.060, and contains about 12 per cent of HCl. Using the officinal acid of the U. S. Ph., it may be prepared approximately by mixing (by weight):

| | |
|---|---|
| Hydrochloric Acid, U. S. Ph. | 4 parts |
| Water | 6 " |

### The Question of the Volatility of Glycerin.

O. HEHNER had already on a former occasion made the statement that when a dilute solution of glycerin is heated or evaporated, the glycerin is *not* volatilized with the vapors of water. Nessler and Barth subsequently (*Zeitsch f. anal. Chem.*, vol. 21 and 23) published the results of experiments which they regarded as proof of the volatility of glycerin under those circumstances. These authors evaporated solutions containing 0.5 to 2 per cent to a syrupy consistence, and found a loss of between 2.4 and 5 per cent of the glycerin.

In the face of these statements, Hehner now maintains his assertion that glycerin does *not* volatilize with the vapor of water. He adds that Nessler and Barth's experiments show that glycerin is only volatilized when its solution is evaporated to *dryness*.

To ascertain at what point of concentration glycerin was thus volatilized, Hehner kept solutions of glycerin of known strength vigorously boiling in a covered beaker over the naked flame, continually replacing the evaporated water, so that the solutions were always as nearly as practicable of the same strength; the glycerin employed had a spec. grav. of 1.2572, corresponding to 95.55 per cent of pure glycerin. The estimations of glycerin were made by the chromate method.

From the results of his experiments [given in the original, but omitted here], Hehner feels justified in asserting that glycerin is *not* volatilized with aqueous vapor from any solution containing less than 50 per cent of glycerin. Even in a 73 8 per cent solution, the loss, if any, is exceedingly insignificant. Whatever loss, therefore, takes place on evaporating glycerin solutions must occur when the residue is nearly or quite anhydrous. It should also be remembered, says Hehner, that in his experiments the test solutions were kept at their boiling points which, in the case of the stronger liquids, was considerably above 100° C. (212° F.); the 73.8 per cent solution, for instance, boiled at 115°-116° C. (239°-240.8° F.); the escaping steam was at 100° C. (212° F.). Hence, if at 115° C., glycerin was practically non-volatile, it may be safely assumed that at 100° C. no loss whatever would have occurred.—After *The Analyst*, 1887, 65.

[Nessler and Barth's experiments have been described by us in detail in our volume for 1884, p. 206. Dr. E. R. Squibb, in a paper on "Fluid Extracts by Repercolation," published in the *Proceed. Amer. Pharm. Assoc.*, vol. 25, 717, reported that on evaporating the residue from certain fractions of a percolate containing alcohol, water, and glycerin at a steam heat, about four per cent of the glycerin present was volatilized with water and alcohol. This statement was contradicted by N. W. Lord (*Am. Journ. Pharm.*; also NEW REM., 1878, 277), who maintained that glycerin was non-volatile. In the same place we mentioned the fact that we had noticed a gradual loss of glycerin in a glycerin bath which we had been using, but we did not make any special investigation of the subject. Hager, in 1877 already, had announced that glycerin is slowly volatilized when exposed to dry air in thin layers or mixed with a pulverulent body (*Pharm. Centralh.*, 1877, 89). In 1882, G. Couttalence found that when glycerin is mixed with water it loses the latter when heated for five hours at 194° F. After this, glycerin is volatilized at the rate of 0.00317 Gm. for every square centimeter of surface exposed [per hour ?]. The rate of evaporation is directly proportional to the surface exposed, and inversely to the temperature. The volatilization is increased by adding water. On page 148 of NEW REMEDIES for 1881 will be found the results obtained by Clausnitzer, who also collates the statements made by previous experimenters. On the whole, it appears that Hehner's statement is supported by a sufficient number of other careful observers.]

### Reactions of Thalline and Antipyrine.

EDMUND BLUMENBACH has studied, under the direction of Prof. Dragendorff, the reactions of thalline and antipyrine, with a view to their recognition in the excrementitious matters of the body, or elsewhere.

*Thalline* (the sulphate was used in the experiments) is not withdrawn from *acid* aqueous solutions by shaking with petroleum ether; only traces are removed by benzol, chloroform, and ether. From alkaline, ammoniacal solutions only a little passed over into petroleum ether; more into benzol, chloroform, and ether. Urine does not require any preliminary treatment when thalline is to be isolated; all that is necessary is to supersaturate with an acid, and then to shake with petroleum ether; then to supersaturate with ammonia and to shake with benzol. From 100 C.c. of urine as little as 0.001 Gm. ($\frac{1}{17}$ gr.) of thalline could still be extracted, enough to apply the reactions below named.

Pure urine does not contain any constituent which could be confounded with thalline, if the more important reactions are taken into consideration.

The most delicate reaction of thalline is the production of a green color with ferric chloride, which is still distinct in a dilution of 1 : 10,000, and still recognizable in one of 1 : 100,000. Chloride of gold also produces a green color, which is still distinguishable in a dilution of 1:100,000. A green color is likewise produced by nitrate of silver, chromic acid, chlorine water, mercuric oxide, chloride of lime and ferricyanide of potassium; but the two last-named reagents must be employed in acidulated solution. Aqueous solution of iodine, and solution of iodine in iodide of potassium color thalline solutions dark-brown, then muddy-green; platinic chloride produces a yellowish-green; fuming nitric acid and warming, a red color. The latter is also observed when concentrated sulphuric acid is poured upon dry thalline, and nitric acid then added; or else, when the vapor of fuming nitric acid is made to act upon thalline. Sugar and concentrated sulphuric acid furnish a red mixture with thalline; vanado-sulphuric acid dissolves it with a green color. Solution of stannous chloride, also phosphotungstic acid form a white precipitate in thalline solutions. With potassio-bismuthic iodide the precipitate is orange-red, with potassio-mercuric iodide yellow, with potassio-cadmic iodide pale rose-colored, with nitroprusside of sodium greenish blue, with picric acid yellow, with phosphomolybdic acid greenish-yellow. On warming with dilute sulphuric acid, the last-named precipitate is greenish-blue. Some of the last-quoted reactions are not very sharp, a few of them being recognizable only in solutions containing at least one per cent of thalline.

Experiments with animals showed that after a full dose of thalline, the urine showed the dark coloration first described by Jaksch; but reaction for thalline could not be obtained when less than 0.5 Gm. (8 gr.) had been given by the mouth. The *reddening* of the thalline urine with ferric chloride (Jaksch's reaction) is best obtained by first precipitating from a few C.c., of urine the phosphoric acid by means of a drop of dilute ferric chloride, then filtering, and adding more ferric chloride to the filtrate. One of the decomposition products of thalline may be separated from the *acidulated* urine by shaking with petroleum ether, benzol, etc. This product is colored *green* by ferric chloride, the same as the original thalline.

*Antipyrine* is mostly used as free base. From its *acid* solution it does not at all pass over into petroleum ether, but slightly into benzol, more readily into chloroform. From its *ammoniacal* solution it is withdrawn by benzol, chloroform, or amylic alcohol. When mixtures are to be tested for antipyrine, the properly prepared aqueous solution is first purified (of fat, etc.) by shaking with petroleum ether, the solution then rendered alkaline with ammonia, and the antipyrine extracted with chloroform. In mixture with urine, blood, etc., quantities of 0.005 Gm. ($\frac{1}{12}$ grain) could still be detected distinctly, 0.001 Gm. ($\frac{1}{60}$ grain) being about the limit. Neither normal urine nor blood contain any substance which could be confounded with antipyrine.

Antipyrine is best recognized by its forming a dark reddish-brown color with ferric chloride, clearly visible in solutions containing 1 in 100. In dilute solutions 1: 100,000, a light brown, and in such of 1:500,000 a light yellow color is observed. The iron reaction succeeds better in neutral than in acid solution. A solution of antipyrine when mixed with concentrated sulphuric acid and a little fuming nitric acid, turns dark red on warming; with vanado-sulphuric acid, green. Dry antipyrine assumes a fine dark red color with fuming nitric acid. In 1 : 1,000 solutions of antipyrine, iodine and iodide of potassium produce a reddish brown, potassio-mercuric iodide or potassio-cadmic iodide a white, potassio-bismuthic iodide an orange red precipitate. In acidulated solutions, 1:100, Nessler's reagent, mercuric or auric chloride, tannic or phospho-molybdic acids produce colorless or yellowish precipitates, picric acid yields a yellow, platinic chloride an orange, ferrocyanide of potassium a bluish green precipitate.

Antipyrine is rapidly absorbed, and cannot always be detected in the urine. It is much more resistant to change than thalline, and there is no proof that it is decomposed in the organism.—After *Zeisch. f. Anal. Chem.*, 1887, 405.

### More New Elements.

THE investigation of the so-called "rare earths," which has engaged the attention of Lecocq de Boisbaudran, Crookes and other investigators, has rendered it evident that several of the bodies which had so far been regarded as elements were themselves compound, or two or more elements. In this way, some four or five of the supposed elements of the "rare earths" have been made out already to contain perhaps ten or twelve different elements, the nature of which has, however, not yet been determined chiefly because the material from which they can be obtained is only of rare occurrence, and because the separation of the several bodies is excessively difficult and tedious, owing to their great similarity. The spectroscope, however, furnishes the chief guide in ascertaining the claims of any of the bodies to the title of an element.

Gerhard Krüss and L. F. Nilson have recently studied five of these bodies, namely, Ermium, Holmium, Thulium, Didymium, and Samarium, and have shown conclusively that none of these can be regarded as elements. In fact, it appears from their investigations that not less than about twenty new elements will have to be assumed to take part in their constitution.

### The Preparation of Pure Valerianic Acid.

In the course of investigations on the fatty acids pre-existing in butter, E. Duclaux has felt it necessary to be in possession of some absolutely pure valerianic acid.

This acid is usually obtained by the oxidation of amylic alcohol. But the products of this oxidation are variable, as they depend upon a complex mechanism not always the same, no matter what oxidizing substance may be employed. If, however, permanganate of potassium is used, the study of the process or products becomes easy.

In presence of permanganate of potassium, and in the cold, amylic alcohol is oxidized to valerianic acid. But the latter, though more stable than the substance it originated from, does not yet possess a very great stability, and may, in its turn, be converted into acetic acid. And even the latter, though the most stable of the whole series, may eventually be converted into water and carbonic acid gas.

If, at the beginning of the process, the amylic alcohol is not added in excess, and the valerianic acid, first formed, meets with undecomposed permanganate, it descends in the scale of oxidation, and the products will be very variable and impure.

For instance, if in presence of 100 Gm. of permanganate, in concentrated solution, less than 10 Gm. of amylic alcohol are employed, only very faint traces of acetic acid will be produced, and no valerianic acid whatever. With 20 Gm. of the alcohol, the yield will be about one equivalent of acetic, and 3 equivalents of valerianic acid. With 40 Gm. of the alcohol, about 10 equivalents of valerianic acid will be obtained against 1 equivalent of acetic. [The term equivalent is used here by the author evidently in the meaning of "parts" or "proportional parts," irrespective of the absolute quantity of the product.] If more than 40 Gm. of amylic alcohol is used, some of it will remain undecomposed at the end of the ope ration, but the proportion between the valerianic and acetic acids will be about 40 parts of the former and 1 part or less of the latter.

In the last-mentioned proportion, the oxidation becomes more rapid and even excessive, which is evident from the heat generated in the mixture. But heat must be guarded against, as this renders the control of the rate of oxidation impossible, so that almost the only stable product obtained is acetic acid.

In order to be successful, therefore, it is necessary to employ an excess of amylic alcohol, and to operate in the cold. But, in spite of all, the production of a little acetic acid cannot be entirely prevented.

This impurity would be very annoying, if it were not easy to separate them by distilling their dilute solutions.

Valerianic acid, when distilled in dilute solution, passes over almost entirely in the first quarter of the volume subject to distillation, while the acetic acid does not pass over (except in traces), but becomes more concentrated in the retort. It is, therefore, possible to separate them by one, two, or more rectifications, and to obtain valerianic acid of absolute purity, or nearly so.

Acetic acid is always produced together with valerianic acid produced from alcohol oxidized by any means; it is also formed [alongside of valerianic acid] when valerian root is treated with oxidizing substances, but in this case it is also accompanied by formic acid.—*Comptes Rend.*, CV., 171.

### Prospective Taboo of Salicylic Acid in France.

The long-discussed question whether salicylic acid, as a preservative of articles of food or drink, is injurious to man, is likely to be soon officially settled in France, where a Commission, appointed by the Academy of Medicine, at the request of the Minister of Commerce, and composed of prominent physicians and chemists, such as Berthelot, Bergeron, Roussel, Proust, Brouardel, Vallin, and others, has just submitted a report, in which it is declared that the daily and long-continued use of even small doses of salicylic acid has been demonstrated, by medical observation, to be able to produce evil effects in feeble and sick persons, and that the use of salicylic acid as a preservative of food or drink should therefore be forbidden.—*Bull. de l'Acad. de Méd.*

### Examination of Butter Colors.

The solution of the butter fat in ether is shaken with a solution of potash or soda of such dilution as to be only just alkaline when separated from the fatty layer after a few hours. Annatto and saffron may be looked for in this extract. With sulphuric acid, annatto strikes first a blue or violet-blue, then a green, and finally brownish or somewhat violet color. These changes of color are important, as pure butters have been known to give a green coloration, but always without the preceding blue. Turmeric is easily recognized by the action of the alkaline solution.—H. B. Cornwall in *Chem. News.*

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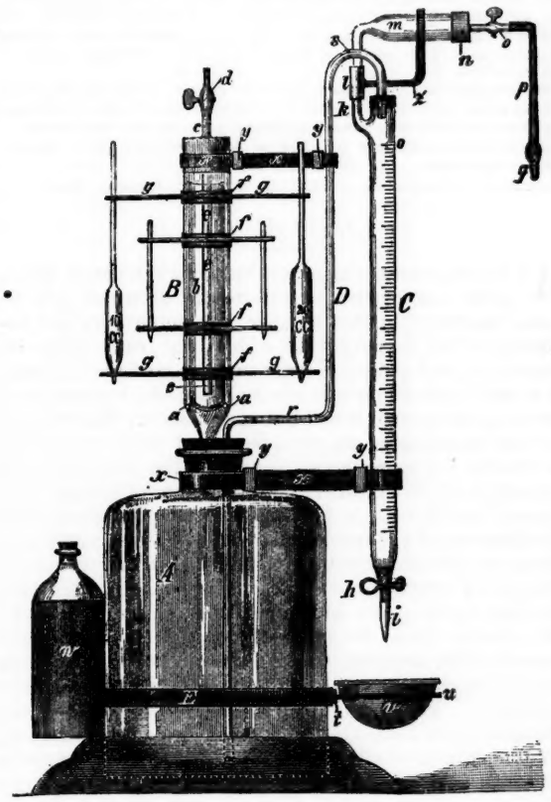
**Bentley's Successor** as Professor of Botany at the School of the Pharmaceutical Society of Great Britain is Mr. Joseph A. Green, B.A. (Cantab.), B.Sc. (Lond.), who was elected to this office on August 3d.

### A COMPACT VOLUMETRIC APPARATUS.

An apparatus, combining every requisite and utensil for the use of one and the same volumetric liquid, has been constructed by Friedrich Larssen, of Riga. This may, perhaps, be too complicated a contrivance for every kind of volumetric solution that is usually kept in stock, but it certainly appears of great advantage when one and the same liquid is to be used frequently. One chief advantage of the apparatus is this, that the reagent cannot be affected by the external air, as the latter is compelled to pass through a washing liquid before entering the apparatus.

The arrangement of the different parts is sufficiently intelligible from the cut, without a detailed description. A solid block of wood holds the large bottle forming the reservoir of the reagent. Metallic clamps at *e*, *x*, *f*, *z* hold in position the various accessories. *B* is a tube intended to hold the liquid for washing the air, which will vary according to the nature of the reagent in the bottle. For instance, if the latter is standard soda, the washing liquid may be a solution of potassa (to absorb $CO_2$ and acid vapors). The tube *B* is closed by a stopper carrying the stop-cock tube *c*. The burette has a special form, the use of which will be understood from the following.

After the reagent bottle has been filled, the tube *B* fitted upon it, and all the connections made as shown in the cut, the apparatus is ready for use at any time. It is started by opening the stop-cocks at *d* and *o*, then




Larssen's volumetric apparatus.

applying gentle suction at the mouth-piece *g*, connected by flexible tubing with *o*, whereby liquid from the reservoir will be drawn over into the burette. Any excess of liquid, rising above the mark 0, is allowed to flow out through the stop-cock at *i*. As soon as the burette is filled, the stop-cock *d* is closed, and only that at *o* is left open.

[This we consider the only objectional part of the apparatus, as it will permit the entrance of unwashed air. We would either make the cylinder *B*, by a slight alteration of construction, answer for both purposes, or we would attach a second washing cylinder to the tube *m*.—*Ed. Am. Drugg.*]—After *Zeitsch. f. Anal. Chem.*, 1887, 333.

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**Pharmacy in the Brussels Exhibition.**—At the thirty-fourth grand international exhibition of science and industry, which will be held in 1888 in Brussels, pharmacy will, for the first time in this series of exhibitions, constitute a separate section. One feature of this section is intended to be a retrospective display of the materials of the old alchemists, and the loan of such objects is invited. Modern pharmacy will also be illustrated in its apparatus and products. The chairman of the section is Louis Créteur, the secretary Victor Ruling.

THE

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## EDITORIAL.

AT the recent meeting of the National Wholesale Druggists' Association, a full report of which will be found elsewhere in this number, the importance and influence of this body upon the whole drug trade, upon the movement and quality of drug supplies, and upon legislation relating to drugs and kindred subjects, became even more apparent than it had been previously. The character and standing of the members, and their constantly increasing numbers, must command the attention and respect of every legislative body, whether of a local or a general character. It is to be expected, therefore, that the interests of the whole drug trade, in which many millions are invested, will be carefully studied and promoted, whenever proper representations are made to the law-making bodies. We had hoped that *one* subject, above all others, would be included among the resolutions passed at the meeting, viz., the abolition of the tax upon alcohol used in the arts; but, while this matter was ably brought forward in the report of the Chairman of the Committee on Legislation, it was not formally acted upon. We think that no effort should be spared to bring about this desirable result in the future, and we earnestly hope that the subject will receive renewed attention at the next meeting. Meanwhile, it would be of advantage to invite the co-operation of scientists to propose new methods of rendering alcohol unfit as a beverage without injuring its solvent powers, so that one may perhaps be found which will render the recovery of the pure alcohol from the mixture practically impossible, for it is this, after all, upon which the success of the movement will have to depend.

JUST before going to press, we are in receipt of a pamphlet from one of our correspondents abroad, containing a prize-essay by Dr. Paul Zipperer on Cacao and its preparations, which contains, among other valuable matters, a new and simple method of determining melting points of fats. As this appears to have yielded very uniform results in the hands of the author, we quote it here as a supplement to the article on page 166 of this number:

A small capillary tube, open at both ends, is introduced with one end into the melted fat, until a drop of the latter has entered it. It is then withdrawn and, when the fat has congealed, laid aside for at least three days, in order that the fat may attain its constant melting point, which is always lower immediately after its congelation than some time afterwards. The tube is then attached to a thermometer by means of a rubber ring, and at such a height that the column of fat shall be exactly level with the middle of the bulb of the thermometer, and the two together are placed upright into a suitable vessel containing water which is being slowly warmed. The water can enter the tube only from below. The author now recommends to regard that point of the thermometer as the melting point of the fat, at which the latter is pushed up in the capillary tube in consequence of its melting by the warm water entering from below.

WE do not know whether the United States Consul at San Salvador, Mr. L. J. DuPrê, has made very extended experiments with *coca* on himself, or whether he describes the experience observed by others in his recent report on the subject, published in the reports from the Consuls of the United States, No. 78, May, 1887. As he does not state that his information was derived from others, we might be justified in surmising that he speaks from personal experience, though we have no doubt that he has his information from second hand, or he would not have used the exaggerated terms which we print in italics:

"The immediate effect of chewing coca is perfect insensibility of the interior of the mouth. The immediate sensation is that which one would experience when finding that his mouth had become a great void in somebody else's head. I had a dentist apply it when extracting the roots of a molar tooth, and the effect was as described. Indians constantly using coca finally lose the senses of taste and smell. They can eat, without repugnance, most disgusting food, and drink most nauseating draughts. The sensitiveness of the mucous membrane has been destroyed.

"When one goes further, and swallows the saliva impregnated with the juice of the coca leaf, *a delicious sensation of warmth and of perfect blessedness pervades one's whole being, intellectual, nervous, and physical, and he is lapped in the joys of an elysium.*

"Taken into the stomach it certainly retards digestion, but begets no inflammation, not even when used constantly. Its action, it seems, is restricted to the nervous system.

"To this healthful action of coca upon the organs of assimilation of food or beverage, and to the chemical and nervous or electrical action of coca, physicians here ascribe the perfect soundness of the teeth of the Indian *coqueros*. The oldest coca eaters have perfect teeth. Sadly worn away they may be, but caries, of which dentists prate so volubly, is unknown.

"The Indian *coquero's* (coca eater's) capacity to endure hunger, or rather the want of food, when furnished with coca properly prepared, is surely extraordinary. Perhaps it neither supplies nourishment nor appeases hunger. It seems rather, as a scientist states, to 'silence the voice of hunger' and still the yearnings of the stomach. The nerves conveying to the brain sensations of hunger or of emptiness are stilled to perfect repose. The hollow voice of the void within is silenced; it is made inaudible. Dr. Morens says, 'coca deceives hunger. If the toiling *coquero* does not eat it is because he thinks he eats.' In fact, as soon as the influence of coca is exhausted and the supply wholly withdrawn, the Indian eats ravenously. His stomach, unlike that of the sober drunkard after a terrible debauch, at once discharges its proper functions perfectly. Coca, it seems, only retards digestion and organic combustion.

"In doses of 15 to 60 grains coca produces delightful intoxication. *Its joys transcend in perfect blessedness all known human delights. A sensation of lightness first supervenes; the air inhaled is zephyrs from angels' wings; there are wild imaginings and fantastic hallucinations and gorgeous visions, and then complete insensibility. It is intoxication without drowsiness, without congestion of the brain, involving a sense of perfect rest. The law of gravitation is suspended, and the coquero drifts bodily among the stars.* Meanwhile, the muscular system is stimulated to an extraordinary degree; an intellectual excitement supervenes, enabling the 'possessed' of this demon to watch and toil through sleepless days and nights. No dreadful headache or more intolerable nervous prostration follows. *The discovery of these facts has induced a few Americans—white people—to test the virtues of coca as a substitute for whiskey, and I am pleased to say they like it.* In at least one instance, when taken in very large quantities, there followed great acceleration of pulse beats and of respiration. There were convulsion of the muscles, persistent insomnia, suppression of thirst and hunger, and diminution of secretions of the skin and kidneys. . . . 'Cocaismo'—habitual intoxication by use of coca—more easily becomes habitual and incurable than alcoholism or addictiveness to opiates. Its consequences are, however, not yet wholly measured or comprehended. Excessive and constant use of this intoxicant begets, rapidly, moral and intellectual degradation and decay. . . ."

We fear the picture of the stage of bliss and beatitude drawn by the author as produced by coca is a little

too highly colored, and is liable to induce persons of ill-balanced mind and of morbid desires to make still more extended experiments with this supposed new *hashish* than is already the case.

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### Correction.

A SUBSCRIBER at Savannah, Ga., has drawn our attention to an error in the article "Composition for Removing Ink Stains," on page 103 of our June number. The total quantity of liquid amounts to more than two quarts, and the whole of it is directed to be put into a quart bottle. This should read "gallon bottle" or "bottle of sufficient capacity."

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**Pennsylvania.**—The lately-organized Board of Pharmacy has elected the following-named officers: Alonzo Robbins, of Philadelphia, president; H. B. Cochran, of Lancaster, secretary; F. H. Eggers, of Allegheny City, treasurer.

There is to be a celebration in Philadelphia on the 17th of September of the centenary of the signing of the Constitution of the United States of America.

**Connecticut.**—Dr. Sevin, of Norwich, has been appointed by Governor Lounsbury to the vacancy on the State Board of Pharmacy.

**California.**—At a recent meeting of the California Pharmaceutical Society, Mr. J. Dawson exhibited a specimen of the first glycerin made in California. It was made by the Huether Brothers.

**New Jersey.**—The following-named candidates have been registered by the State Board of Pharmacy: Joseph Hart, P. C. P., 1881, Cape May; Randolph H. Dounes, P. C. P., 1886, Cape May; Mason W. Zimmerman, P. C. P., 1886, Cape May; William H. Sutton, P. C. P., 1887, Philadelphia; John F. Potts, P. C. P., 1887, Atlantic City; W. Charles Ness, National C. P., 1886, Asbury Park. The following were examined and passed: Gustav Pichel, Newark; Alex. M. Levia, Newark.

**Nebraska.**—The following-named druggists passed an examination before the State Board of Pharmacy: Edward W. Bexton, Grand Island, Neb.; J. Cecil Cornwell, Crete, Neb.; Henry R. Gering, Omaha, Neb.; Fred. W. Richter, Omaha, Neb.; The. A. Helmig, Columbus, Neb.; Fred. W. Picks, Omaha, Neb.; Fred. E. Hagin, Ansley, Neb.; A. H. Jester, Palmyra, Neb.; A. J. Shaul, Keswick, Ia.; John B. Gaffney, Nelson, Neb.; W. B. Kern, Cairo, Neb.; J. A. Halduman, Omaha, Neb.; P. E. Norwood, Homer, Neb.; J. T. Burk, Dennison, Ia.; August Rice, Hastings, Ia.; R. U. Walton, Valley, Ia.

Twelve candidates failed to meet the requirements.

**Michigan.**—A recent amendment of the pharmacy law does away with the "five-mile limit," and establishes a grade of "assistant." It, moreover, provides for the registration, without examination, of those who can prove that they had been actually engaged in the drug business for three years, but had failed to register before Decem- 18th, 1885.

**Dakota.**—The North Dakota Pharmaceutical Association met at Fargo on the 2d of August, Mr. J. W. von Weida presiding. Within the year which has elapsed since its organization, it has acquired two hundred members, and secured the enactment of a State pharmacy law. The newly-elected officers are: A. B. Bennett, of Devil's Lake, president; H. L. Haussamer, of Grafton, secretary; and E. C. Maxey, of Fargo, treasurer. The next meeting will be at Jamestown on the first Tuesday of August next.

The State Board of Pharmacy considered applications for registration on the 4th of August, rejecting 304 out of 379 candidates for registration under the permissive clause, and 6 out of 25 candidates for registration by examination.

C. Y. Durand, a prominent druggist of Huron, Dak., died August 5th from the effects of a strangulated hernia.

**North Carolina Pharmaceutical Association.**—Owing to an unfortunate irregularity in the running of trains, in consequence of damaging rains, the meeting at Asheville, on Aug. 3d and 4th, was poorly attended. Only necessary routine business was hurriedly transacted. The Association held three short sessions, and adjourned to meet in Goldsboro on second Wednesday in August, 1888.

The officers and committees elected and appointed are as follows: *President*, F. W. Hancock, of New Berne; *Vice-Presidents*, T. D. Crawford, of Oxford; W. C. Carmichael, of Asheville; W. H. Wearn, of Charlotte; *treasurer*, A. S. Lee, of Raleigh; *Secretary*, E. V. Zoeller, of Tarboro; *Local Secretary*, H. C. Shannon, of Goldsboro; *Executive Committee*, H. H. Lyons, of Asheville; D. L. Adams, of Raleigh; J. H. Hardin, of Wilmington; D. Herring, of Wilson; W. H. Turman, Jr., of Louisburg; S. O. Smith, of Charlotte; E. V. Zoeller, ex-officio of Tarboro; *Committee on Papers and Queries*, D. Herring, of Wilson; J. S. Grant, of Asheville; W. H. Wearn, of Charlotte; *Business Committee*, John H. Hill, of Goldsboro; W. H. Turman, Jr., of Louisburg; V. O. Thompson, of Winston; *Delegates to Am. Pharm. Assoc.*, Wm. Simpson, of Raleigh; E. V. Zoeller, of Tarboro; S. J. Hinsdale, of Fayetteville; A. W. Rowland, of Wilson: T. B. Hill, of Goldsboro.

**Illinois.**—At the twenty-third annual exercises of the Chicago College of Pharmacy, held August 4th, addresses were delivered by G. P. Englehard, Prof. H. D. Garrison, and, in behalf of the graduating class, by W. M. Jewell. A degree was conferred upon Alfred N. Boe, Charles E. Boddiger, Louis Brinkman, Herman R. Cunradi, Otto Doerrlamm, A. Emil Hiss, William M. Jewell, Emma Kauffman, Charles J. Lapp, Florence M. Oliver, Samuel A. Slater, Chas. F. Smith, Frank B. Stephens, J. Arthur Thomas.

The senior prize was awarded to A. E. Hess, and the junior prize to E. A. Sayre.

Two members of the class, it will be noted, were women.

The limit of time within which registration may be acquired under the pharmacy law without further payment has been extended to December 31st.

The last issue of the Chicago directory states that there are 450 drug stores in the city.

The following State law is now in force:

"No person shall sell, pay for, or furnish any cigar, cigarette, or tobacco in any of its forms to any minor under sixteen years of age, unless upon the written order of parent or guardian. The penalty for each offense is $20."

**Prizes.**—The French Society of Photography offers the following prizes: One of 2,000f., presented by the Minister of Public Instruction, for the improvement of objectives; 1,000f., presented by M. Davanne, for a greater sensitiveness of plates; and 500f., by M. Gaillard, for the best pellicular process. The memoirs must be sent to the society before the end of December, 1888.

The Academy of Sciences has been authorized to accept a bequest of 40,000f., made by M. Martin-Damourette, for the purpose of founding a yearly or biennial prize to be awarded for researches on therapeutic physiology.

**Pasteur** was, on July 18th, elected a perpetual secretary of the Academy of Sciences, for the physical and natural sciences division, in place of the late Dr. Vulpian. The academy has two perpetual secretaries, whose influence is very great, as they prepare the work of the sittings, read the communications, and to a certain extent direct the proceedings. The other secretary is M. Bertrand, for the mathematical sciences division.

**Dr. C. G. Wittstein,** for many years one of the most active and productive authors on the field of pharmaceutical literature, died on June 2d, at Munich, where he had resided and labored during fifty-one years of his busy life. We have given his detailed biography, with portrait, in the June number of NEW REMEDIES for 1881. As a supplement to the list of his literary works there given, we have to add his German translation of the Natural History of Pliny, upon which he had been engaged many years, and which exhibits great care and familiarity with the different branches of natural history, though it suffers from the fact that the translator did not make use of the more recent critical editions of the text. He has had a large number of pupils from all parts of the world, with many of whom he kept up an active correspondence. His death is regarded as a great loss to the profession.

**The Hungarian Pharmacopœia,** of which the first edition appeared in 1871, has been revised by a committee appointed by government, and the manuscript of the new revision has been completed. The work will be issued during the latter part of this year. It is much to be regretted that the particularistic feeling of the Hungarian nation does not seem to make it feasible to bring uniformity or at least a greater harmony into the two pharmacopœias of the Austrian Empire. The Austrian pharmacopœia is at present being likewise revised by a government commission. How much better would it have been had both commissions worked together, at least to agree on the main features. It is hardly likely that the two contiguous countries, Austria proper and Hungary, require such different drugs or preparations as to make two separate pharmacopœias necessary. Of course, those who know the history of the political parties in Hungary, and have watched their movements, will recognize the apparent impossibility of bringing about a fusion of the two works. We should, indeed, not be surprised, if other sections of the empire were to demand autonomy in pharmacopœial matters, so that we might hereafter hear of a Bohemian, Slavonian, etc., pharmacopœia. The chairman of the International Pharmacopœia Commission, Baron Anton von Waldheim, who is a very prominent pharmacist in Vienna, has still a chance of using his influence to bring about a close approximation between the two works before they are published. If this is found impossible in the very home and native country of the chairman, its eventual success in other countries is not likely to be realized.

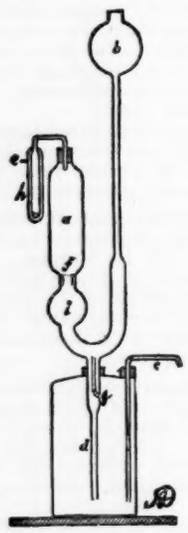
### APPARATUS FOR THE GENERATION OF A CONSTANT GASEOUS CURRENT.*

THE principle usually underlying the construction of gas-generators is this, that the acid setting the gas free is forced back into a receptacle when the exit of the gas is closed, and does not flow back until the gas is again allowed to escape from the apparatus. One disadvantage of this arrangement is this, that the acid gradually becomes specifically heavier and less prone to act upon the solid substances.

The apparatus designed by Chr. Steenbusch, and illustrated in the accompaying cut, removes this objection.

The solid substance which evolves the gas or causes its evolution when the acid comes in contact with it—for instance, a carbonate for the production of carbonic acid, sulphide of iron for hydrosulphuric acid, zinc for hydrogen, manganese dioxide for chlorine, etc., etc.—is placed into the reservoir *a*, the bottom of which is closed by a glass-diaphragm *f*.

At this place, the reservoir is contracted into a neck, and below this expands into a globe *i*, intended to receive the accumulated gas when the exit from the apparatus, at *e*, is closed. At the lowest point of the curve, a tube *d* extends downwards, and is fitted into the neck of a Woulff's bottle. This tube *d*, however, has a small tube fused inside of it, opening at *g*, by means of which communication is established between the *upper* part of the Woulff's bottle and the reservoir, together with its lower U-tube. To the neck of the reservoir is attached a small washing apparatus *h*, so arranged that the gas passes only through a small portion of liquid, so that, in case of any back-pressure, the wash-liquid will not be aspirated back into the reservoir. At *e*, a rubber tube with pinch cock is attached, to control the exit of the gas.



Steenbusch's current generator.

Current of a saline solution through lighter liquid.

Supposing hydrosulphuric acid gas is to be generated. In this case, *a* is filled with pieces of sulphide of iron, and moderately dilute sulphuric acid is poured into *b*, until the latter is half filled. The acid will flow into the Woulff's bottle through *d*, while the air contained in it will escape through *g*, and, by inclining the apparatus, the whole of the air contained in it may be allowed to escape. As long as the exit for the gas is closed, the acid will not be able to enter the reservoir *a*, but when the exit is opened, acid will flow into it and act on the sulphide. The generated hydrosulphuric acid gas will pass through the wash-bottle and escape by the tube attached to *e*. When the outlet is closed, the confined gas will depress the acid from the reservoir, and the dense solution, partly saturated with ferrous sulpbate, will descend through the tube *d* into the bottom of the Woulff's bottle [only a small fraction probably finding its way through the narrow interior tube *g*]. As the partly-saturated acid flows down, fresh acid will take its place by rising through the interior tube *g*, and whenever the outlet is opened again, the current of gas will be re-established at its former rate. This interchange of spent and fresh acid goes on also while the apparatus is working, the two currents, both ascending and descending, being easily observable.

When the acid is all spent or saturated, it may be easily removed by siphoning it off through *c*.

When using the apparatus for the generation of hydrosulphuric acid, it is advisable to wash out the reservoir *a* occasionally, say after about 12 oz. of sulphide of iron have been consumed in it, as the insoluble matters left by the crude sulphide of iron are liable to cause considerable foaming.

If the apparatus is to be used for the generation of chlorine gas, a soft lead tube is closely coiled around the reservoir *a*, and a current of steam, either taken from the steam-supply or generated from a flask containing boiling water, passed through it. This heats the water sufficiently to establish and maintain the reaction.

When the apparatus is charged for producing chlorine and the current of chlorine gas is to be shut off, it is necessary to first drive over the acid, by internal pressure, into *b*, and then to close the orifice of the latter hermetically by a tight cork, so as to retain the column of acid, after which the delivery tube at *e* is again opened and left so. If this is not done, the confined liquid might absorb the chlorine gas remaining in the apparatus and pass over into the wash-bottle.

* Abstract of a paper in *Jour. der prakt. Chem.*, 35, 364, by Chr. Steenbusch, communicated by the author.

### EFFECTIVE DEMONSTRATION OF THE CURRENT OF A SALINE SOLUTION THROUGH A LIGHTER LIQUID.

THE well-known fact that a denser solution will sink through a lighter liquid, upon which principle depends, among other things, the process of so-called superior maceration, that is, the solution of a substance by suspending it at or just below the surface of a column of its solvent, may be very effectively demonstrated in the following manner: Upon a rather large glass cylinder filled with water is placed a glass plate, to the under surface of which is affixed a piece of a wax candle bearing at its end a large crystal of permanganate of potassium. The crystal should be fastened vertically and should project about 10 millimeters (⅜ inch) into the water. At once there will descend from it a thin, red string, upon which will be formed, in consequence of the friction against the surrounding water, globular expansions, which gradually grow to a bell-shaped formation, and finally are converted into handsome, whirling rings, frequently passing through each other. The process will continue for an hour or thereabouts.—F. C. G. MÜLLER, in *Chem. Centralbl.*, 1887, 446.

### Anise in Assam.

ANISE and star anise are found in abundance in Assam, the one under the name of *mahori*, the latter under that of *badian*. Among the low hills round Gowhatti, and in the forests of the Khassia and Naga Hills, sufficient seedlings of anise for stocking can be easily procured, but considerable care is required in transporting them, and this should be done during the cold weather, the plants lifted with as much earth round the roots as can be conveniently carrried. As the object with anise is to obtain as luxuriant a foliage as possible, high cultivation and copious manuring should be resorted to; the plant may be put in four feet by four feet, the same distance as tea, but if the district in which the plantation is situated is more than ordinarily subject to visitations of blight and red spider, it will be prudent to plant somewhat wider, say five feet by five feet; for the quality of the oil will be adversely affected by the presence of diseased leaves. Anise leaves should be gathered like tea, and plucking takes place in dry weather only. The leaves may be subjected to a light rolling, so as to break the cells, and the oil pressed out or extracted by distillation. The oil may be shipped in small casks or bottles, the latter being always easily procurable in the growing districts.

For the cultivation of star anise or badian, a manure containing a high percentage of phosphates, such as limestone, bones, or animal offal, answers best. The seeds, or rather fruit, is of course the principal product, but the bark of the badian is almost equally rich in aromatic constituents. Both seed and bark may be lightly crushed and infused in alcohol or distilled in the usual manner. The flavor of anise preparations is so pungent that the house set apart for their manipulation should be kept distinct from all buildings devoted to other manufactures, and the people employed in the anise business should be retained for that special purpose. Natives are proverbially careless, so that strict vigilance to prevent interchange of the tea and aniseed baskets must be specially guarded against. Scented tea is all very well in its way, but impregnated with the powerful odor of anise it would find scant favor either with dealers or the general consumer.—*Chem. and Drugg.*

### Serkys Tea.

MR. J. R. JACKSON, of Kew, has published a note in the *Gardener's Chronicle* on a medicinal tea which has attracted some attention of late under the name of "Serkys tea," it being said to improve digestion and clear the complexion, prevent skin diseases, etc. An infusion of the broken leaves was found to have the odor and flavor of sage, and seeds of a species of Chenopodium (*Ch. ambrosioides*) were detected by Professor Oliver. The preparation appears to vary in composition, since a sample, examined by the writer, had a distinct flavor of green mint. Serkys tea, according to a well-known Turkish scholar, means simply St. George's tea.—*Pharm. Journ.*

### Peroxide of Hydrogen as a Medicinal Agent.

DR. J. MOUNT BLEYER draws attention to the efficacy of peroxide of hydrogen in a variety of diseases or conditions, where a powerful oxidizing action is indicated. Thus, it is in many instances a most prompt antifermentative and antiseptic, exceeding in power even corrosive sublimate by many degrees. As a disinfectant it is superior to chlorine or sulphur. As an application in form of spray, to diphtheritic membranes, and other morbid conditions of the throat, it is of the highest benefit.

It may be either used in its undiluted, commercial condition, or in dilution.

Pure peroxide of hydrogen has the composition $H_2O_2$ and yields 475 times its own volume of oxygen. 100 parts by weight of $H_2O_2$ yield 5.88 parts by weight of hydrogen, and 94.12 parts by weight of oxygen.

In commerce it is not sold in its pure condition, but in a dilute form. It is customary to designate the various grades of strengths by the volumes of gas which the particular solution is capable of yielding. Usually the commercial article is between "10" and "20" volumes. For instance, a 10-volume solution is one which can evolve 100 volumes of oxygen gas. That is, it contains 2.1 by weight of the $H_2O_2$, and evolves 1.45 per cent of oxygen. It is very customary for physicians to mention a special brand of the peroxide, namely, that made by Chas. Marchand, as the best. But we are in possession of several excellent samples of the substance, made by other parties in this country.

Peroxide of Hydrogen, when used *externally*, is usually diluted as follows:

*Spray of Peroxide of Hydrogen.*

Hydrogen Peroxide, 15-vol... ..... 2 fl. oz.
Water.....14 fl. oz.

*Gargle of Peroxide of Hydrogen.*

Hydrogen Peroxide, 15-vol..... 2 fl oz.
Water.....14 fl. oz.

*Irrigation of Peroxide of Hydrogen.*

Hydrogen Peroxide, 15-vol.... .....3, 4, or 5 fl. oz.
Water.....13, 12, or 11 fl. oz.

*For Local Application.*

Hydrogen Peroxide, 15-vol.....3 to 10 fl. oz.
Water.....13 to 6 fl. oz.

*For Inhalation.*

Use the full-strength 15-vol. solution. Do *not* use any metallic inhalers.

*Ozonized Vapor.*

Hydrogen Peroxide, 15-vol..... .....2 fl. oz.
Glycerin, pure.....1 fl. oz.

To be put into a glass apparatus (of special make), where a current of air forces it in form of a spray against the inside of the glass bottle, which causes the splitting up of the compound into nascent oxygen and water.

*Internal Use of Peroxide of Hydrogen.*

1 to 3 teaspoonfuls of the 15-vol. solution in half a glass of water, three times daily, after meals.

In diphtheria in children, irrespective of age, prepared mixture of

Hydrogen Peroxide, 10-vol.....200 parts.
Glycerin ..... ..... 3 "

Of this mixture, a teaspoonful may be given every two hours, and in severe cases, every hour.—After *Med. Record*, August 13th.

### Estimation of Peroxide of Hydrogen.

DR. H. THOMS has experimented with the four principal methods for estimating commercial solution of peroxide of hydrogen, and communicates his results to *The Archiv der Pharmacie* (April, page 335). The methods are (1) heating a measured volume of the solution of the per oxide with manganese peroxide or lead peroxide. The reaction which occurs may be expressed thus:

$$MnO_2 + H_2O_2 = MnO + H_2O + O_2.$$

The liberated oxygen is passed through strong sulphuric acid, and may be collected and measured, or the loss of weight which the apparatus and its contents suffer after the reaction is complete may be ascertained. In each case the percentage of $H_2O_2$ is calculated from the factor obtained. Squibb's urinometer is a suitable apparatus for this test. (2) 5 C.c. of the peroxide is mixed with three times its volume of dilute sulphuric acid (1 in 4), excess of decinormal permanganate of potash added, and after reaction is complete, excess of this reagent is estimated with decinormal oxalic acid. Two molecules of permanganate decompose five of hydrogen peroxide, and from the amount of the permanganate used the percentage of the peroxide is calculated. A third method consists of adding a measured volume of peroxide solution to sulphurous acid, which is oxidized into sulphuric acid. This is precipitated as barium sulphate, dried, incinerated, and weighed, and the calculation made from the weight found. The fourth method tried was as follows: 50 centigrammes of potassium iodide were dissolved in a mixture of 50 grammes of water and 1 gramme of sulphuric acid (1 in 4); this was heated to 40° Cent., and 5 C.c. of a peroxide solution diluted with 9 volumes of water were added to it, and in five minutes the amount of iodine liberated was estimated with decinormal sodium hyposulphite (of which 1 C.c. = 0.0017 $H_2O_2$), by multiplying the number of cubic centimetres of hyposulphite solution used by 0.34, the percentage of $H_2O_2$ in the peroxide solution is obtained.

Peroxide of hydrogen (10 volumes) should contain 3.0382 per cent of $H_2O_2$, and Dr. Thoms, working by the methods described, obtained the following results: (1) 3.2 per cent, (2) 3.224 per cent, (3) 3.23 per cent, and (4) 3.213 per cent. He considers that all four are useful methods, but gives preference to the first and fourth, which are easier and quicker than the others.—After *Chem. and Drugg.*

### Detection of Fuchsin or Gentian-Violet in Wine.

J. BERNÈDE recommends the following method as very reliable and sharp:

Dissolve 12 Gm. of liquefied carbolic acid (10 parts of phenol and 1 part of alcohol) in 60 parts of ether. Shake 10 C.c. of the suspected wine with 5 C.c. of the mixture, then set it aside for a minute. If the wine was free from foreign coloring matters, the supernatant ethereal layer will be colorless; but if gentian-violet or fuchsin were present, it will have a reddish-violet or deep-red color.—*Journ. Pharm. et Chim.*

### Injury of Salicylic Acid and of Alum to the Teeth.

A SWISS sanitary journal (*Schweizerische Blätter für Gesundheitspflege*) warns against the use of salicylic acid as a constituent of mouth-washes, which has been repeatedly recommended.

According to Mr. Schlenker, a dentist of St. Gallen, a sound tooth loses its gloss completely when placed for a quarter of an hour into a solution of salicylic acid of the strength of 1 in 1,000. Parreidt has shown that salicylic acid dissolves phosphate of calcium which is the most important constituent of the teeth.

Alum is likewise injurious to the teeth, though not to the same degree as salicylic acid. If alum is used for a mouth-wash, the mouth should be well rinsed with water immediately afterwards.

### Lactic Acid in Green Diarrhœa.

IN the treatment of this contagious disease of infants, Dr. Hayem has found that the best way of preventing its spreading is to disinfect all the clothes soiled by the dejections. Also instead of alkalies heretofore recommended, he uses acids. It has been observed that both muriatic and lactic acids are deadly to the microbe causing this peculiar diarrhœa in hospitals; but of the two, for obvious reasons, lactic acid is preferable. M. Pierre Vigier has proposed the following formula:

Lactic Acid... ..... 2 grammes
Simple Syrup .. .....98 " "
Oil of Lemon..... ..... 1 drop

Dose: Two or three tablespoonfuls a day.

The preparation tastes like syrup of lemon, and is taken readily by children. For nurslings, the syrup may be diluted with an equal proportion of water.—*Chem. and Drugg.*

### Purification of Honey.

ACCORDING to O. Kaspar, the following process of clarifying or purifying honey is preferable to all others:

Heat 1 part of the honey with 4 parts of water during half an hour in a vessel immersed in a boiling water-bath, then mix it with shreds of filtering paper (10 Gm. for each kilogram of honey), and a sufficient quantity of recently ignited wood charcoal in powder, and heat another half hour. Then set it aside for twenty-four hours, to allow the suspended matters to subside, filter, and evaporate the clear liquid on the water-bath to 1 part (the original weight of the honey). Then set it aside to cool. When it is cold, determine its specific gravity and adjust this, if necessary, by the addition of water to 1.320. This density is recommended for the reason that honey of specific gravity 1.300 does not keep, while at 1.330 it has a tendency to crystallize.

Honey thus clarified has a golden-yellow color, is clear, of a fine aroma, and does not contain substances foreign to honey.—*Schweiz. Wochenschr. f. Pharm.* and *Neu. Erfind. und Erfahr.*

### Detection of Mineral in Vegetable or Animal Oils.

THE detection of mineral in animal or vegetable oils is usually directed to be accomplished by saponifying the suspected oil by heating with an aqueous or alcoholic solution of potassa, and then treating the resulting soap with petroleum ether, which would dissolve out any unsaponified fat, the latter being, of course, the mineral oil.

In order to separate the produced soap, some analysts are in the habit of adding chloride of sodium to the mixture, others use chloride of calcium or magnesium, or sulphate of magnesium, in order to convert the alkali soap into one of the alkali earths. Benedikt, however, has pointed out that when such strongly alkaline soaps are treated with petroleum ether, a small fraction of the soap is dissolved by this menstruum.

A. Gawalovski has had ample opportunity to confirm this statement of Benedikt. He adds, that the quantity of soap dissolved by the petroleum ether is, indeed, very small, and would not vitiate any but very exact determinations.

To avoid the error, he advises to proceed as follows:

Heat the oil with alcoholic solution of potassa (about 2 parts of hydrate of potassium to 10 parts of fatty matter) until saponified, drive off the larger proportion of alcohol by heat, then add a solution of chloride of calcium, or of sodium, or of magnesium, or of strontium, and finally bicarbonate of sodium, until the alkaline reaction has nearly disappeared. [The alkaline reaction, of course, would appear again after the mixture is raised to boiling; yet the monocarbonates then formed are neither themselves soluble in petroleum ether, nor do they promote the solubility of the soaps in this solvent.] Instead of bicarbonate of sodium, the bisulphate may be used. Alum solution might also be used to remove the excess of alkali, but in this case great care must be taken to avoid adding an excess.

A soap which has been rendered free from uncombined alkali by this method is absolutely insoluble in petroleum ether. Hence, if the soap is treated with this solvent, the latter may dissolve any mineral oil present, but none of the soap.—After *Zeitsch. f. Anal. Chem.*, 1887, 330.

### Assay of Coca Leaves.

J. PFEIFFER recommends the following as the best method of assaying coca leaves:

Reduce 100 Gm. of the leaves to pieces not larger than 25 millimeters square [why not to powder?] and shake them in a long-necked flask with 400 C.c. of water and 500 C.c. of one-tenth normal solution of soda (containing 4 Gm. of caustic soda in the liter). Next add 250 C.c. of petroleum (boiling at 200–250° C.) and digest the whole for 2 hours on the water-bath at 70° C., the flask being only loosely stopped. Allow to cool, strain through a coarse strainer and strongly express the residue. On standing, the liquid separates into 2 distinct layers, a light-yellow oily layer on top, and a dark greenish-brown aqueous layer below, which are separated by a separating funnel. The clear filtered petroleum layer is then transferred to a glass-stoppered bottle, and titrated under continued agitation with $\frac{1}{10}$ normal hydrochloric acid (containing 1 Gm. of HCl in 100 C.c.), until neither blue nor red litmus paper is affected by a drop of the agitated mixture. The number of cubic centimeters of the hydrochloric acid thus consumed, when multiplied by 0.042, indicates the percentage of alkaloid in the coca, with sufficient accuracy for practical use, and, according to the author, more exactly than any other heretofore published method.—*Pharm. Zeit.*

### Salol.

THE following process for preparing salol, the phenyl ether of salicylic acid, has been patented by Hofmann & Schoetensack, of Ludwigshafen, on the Rhine.

58 kilos of phenol-sodium, and 80 kilos of salicylate of sodium are intimately mixed in an iron boiler provided with mechanical stirring arrangement and reflux condenser, and the mixture then exposed to the action of phosgene gas. [This is an oxychloride of carbon, $COCl_2$, which may be prepared in various ways, best by passing carbonic oxide gas through pentachloride of antimony.—ED. AM. DR.] There results a strong reaction, accompanied by heat. When the mixture cools, a moderate artificial heat is applied to complete the process. The salol may be readily separated from the mixture by a current of steam. It collects in form of drops under the surface of the water, may be readily brought to crystallization by dropping into it a crystal of the substance, and is finally recrystallized from dilute alcohol.—*Deutsch. Patentblatt.*

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**Boracin** is said to consist of boric acid, glycerin, methyl salicylate, menthol, thymol, and eucalyptol. It is used in solution as a wound dressing; as a thick paste, it is applicable to ulcers; as suppositories made with 45% of glycerin, it may be used in treating chronic leucorrhœa, or to exterminate rectal parasites; and as an ointment it is a remedy for eczema.

### Note on the Active Principles of Croton Oil.

ACCORDING to Senier (See NEW REM., 1878, 118), croton oil contains two active principles, one of which is only purgative, while the other is only vesicant. This statement is not borne out by the investigations of Ernest von Hirschheydt, made under the direction of Prof. Kobert, of Dorpat. On the contrary, both of the above effects are united in the crotonoleic acid discovered by Buchheim (1873). The glyceride of this acid is inert, but the free acid possesses both the vesicating and the drastic purgative properties of the oil. The acid is best prepared by saponifying that portion of croton oil which is soluble in alcohol by means of hot saturated solution of baryta, washing the resulting stiff magma completely with water and treating it repeatedly with ether, which leaves the barium salts of stearic, palmitic, and lauric acids undissolved, but dissolves oleate and crotonoleate of barium. After the evaporation of the ether, the residue is taken up by alcohol, which dissolves only the crotonoleate of barium. This salt is finally decomposed wich sulphuric acid. From the filtrate the free acid may be prepared.

[Senier's experiments appeared to show conclusively that the portion of croton oil which was the most soluble in alcohol was the most active. At the same time he found that the solubility in alcohol and the activity of the oil increased with age. This fact has been confirmed by therapeutic observations made at Bellevue and other New York hospitals, but the reason for it—if it is one residing in the oil at all—has not yet been ascertained. Ageing can have hardly more than an oxidizing effect upon the oil. To test the influence of oxidation, one of us has acted upon croton oil with permanganate of potassium in aqueous neutral as well as alkaline solution, and has thereby obtained a considerable quantity of resin which was found to be nearly inert. But the residuary oil, after purification, turned out to be rather more active than the original oil.—ED. AM. DR.]

### Preparation of Pure Hydrogen and Carbonic Oxide Gas.

SCHWARZ recommends the following simple method for preparing hydrogen gas.

Convert a sufficient quantity of quicklime, by means of a little water, into hydrate, pass it through a sieve and dry it at 100° C. Mix 22.8 Gm. of this with 20 Gm. of zinc dust, introduce the mixture into a combustion tube, and heat the latter in the combination furnace, beginning at the rear end. There will be given off a steady current of very pure hydrogen, the reaction being:

| Zn | + | $Ca(OH)_2$ | = | ZnO | + | CaO | + | $H_2$ |
|---|---|---|---|---|---|---|---|---|
| zinc | | calcium hydrate | | zinc oxide | | caustic lime | | hydrogen |

The yield from the quantities above given is about 5,200 cubic centimeters.

In the same manner, carbonic oxide gas may be prepared by mixing 20 Gm. of zinc-dust with 20 Gm. of calcium carbonate, and proceeding in the same manner. The reaction is:

| Zn | + | $CaCO_3$ | = | ZnO | + | CaO | + | CO |
|---|---|---|---|---|---|---|---|---|
| zinc | | calcium carbonate | | zinc oxide | | caustic lime | | carbonic oxide |

The yield of carbonic oxide is 6,820 cubic centimeters.—*Ber. d. Deutsch. Chem. Ges.*

### Testing for Salicylic Acid.

TAFFE recommends, in the *Journ. de Chim. et Pharm.*, to extract salicylic acid from mixtures containing it [after acidulating the liquid if necessary], by means of petroleum ether of spec. grav. 0.650, in conjunction with ordinary ether. The advantage of this method is stated to be this, that petroleum ether rejects or separates the water which the latter always contains, and that the mixture does not again become aqueous on shaking, as is the case when only the common ether is employed.—*Rundschau* (Prag).

### Photoxylin.

PHOTOXYLIN, a substance used in Russia by photographers, has been recommended by Prof. Wahl, of St. Petersburg, as a substitute for collodion in surgical practice. He states that a five-per-cent solution of photoxylin in equal parts of alcohol and ether, when applied to the skin, forms an impervious dressing that adheres firmly and is not easily rubbed off in washing. In small operations, he has found that the application of this solution makes it possible to dispense entirely with more bulky antiseptic dressings.—*Lancet* and *Pharm. Journ.*

### Borax, Honey, and Bicarbonate of Sodium.

IT is known that the addition of *glycerin* to a solution of borax renders the latter acid; so that, if a bicarbonate is present at the same time, the second molecule of carbonic acid gas will be expelled under effervescence. The same effect is produced by *honey*, but what constituent of the honey it is which causes this reaction has not yet been determined.

### Cleaning Chemical Glassware.

ONE of the most annoying occurrences during the use of chemical glassware, such as test-tubes, measuring vessels, burettes, pipettes, etc., is the persistence with which traces of fatty matter adhere to the interior, preventing thereby the uniform wetting of the surface by the contained liquid. In the case of volumetric work, this often seriously interferes with measuring, as it is impossible to read off any volume correctly, unless the residuary liquid has uniformly drained down to a steady level, without leaving drops adhering to the side.

It is sometimes apparently impossible to remove the last traces of this fatty coating even with the aid of a caustic alkali or with benzin. The most efficient method for accomplishing the purpose, according to C. Mohr, is to fill the burette or other glass vessel with a rather concentrated solution of permanganate of potassium which is allowed to remain in it for several days. The vessel is then rinsed with diluted hydrochloric acid and water.

*Note by Ed. Am. Drugg.*—In some cases, it will be found best to use a strongly alkaline solution of permanganate of potassium. This is particularly the case, when a glass vessel has contained solutions of vegetable constituents, containing oily or waxy matters, extracted by volatile solvents.

### Assay of Essential Oil of Mustard in Mustard Plaster, Etc.

EUGEN DIETERICH recommends to use the following process for estimating the quantity of essential oil of mustard in mustard plaster or other preparations of mustard.

A definite quantity or a measured surface of the plaster is cut into a number of very small pieces or strips, placed in a flask and covered with 50 C.c. of water at a temperature of about 25° C. (77° F.). The mixture is agitated for about 10 minutes, and 5 C.c. of alcohol added to interrupt the reaction. Next 2 Gm. of olive oil are added, for the purpose of preventing excessive foaming. During the subsequent distillation, a Liebig's condenser connected with the flask, and a receiver attached having the capacity of 100 cubic centimeters, and containing 10 Gm. of water of ammonia. About 25 or 30 C.c. are now distilled over from the flask, the distillate diluted with water to 100 C.c., and solution of nitrate of silver added to the latter in slight excess. After 12 or 24 hours, the precipitate is collected upon a weighed filter, washed with water and dried at 100° C. The weight of sulphide of silver found multiplied with 0.4301, represents the quantity of essential oil of mustard present in the article examined. —*Pharm. Post.*

### Oil of Turpentine a Deodorant of Iodoform.

OIL of turpentine is recommended as a very efficient deodorant for the hands or for utensils, after they have come in contact with iodoform. They are first thoroughly rubbed with oil of turpentine, and after about half a minute washed with soap or soap spirit.—*Zeitsch. d. Oesterr. Apoth. Ver.*

[*Note of Ed. Amer. Drugg.*—We prefer a watery solution of tannic acid, which leaves no odor of its own, destroys that of iodoform immediately, and can be washed off at once.]

### The Identity of Cadaverine.

PROF. LADENBURG has definitely shown that the ptomaine or cadaver alkaloids discovered by him some time ago, and then suspected to be identical with pentamethylendiamine, a base which can be produced synthetically—is really the same body as the latter.—*Ber. d. Deutsch. Chem. Ges.*, 1887, 2,216.

[The tyrotoxicon, or milk ptomaine discovered by Prof. Vaughn of the University of Michigan, appears to belong to the same class of bodies, as may be judged from a recent statement of the discoverer.]

### Cannabis Indica in Diarrhœa.

TINCTURE of cannabis indica is recommended in the *Practitioner* (July, p. 9), by Drs. F. F. Bond and B. E. Edwards in the treatment of summer diarrhœa. It is stated to possess the advantage of not interfering with the digestive functions, but on the contrary to accelerate their return. The dose given is ♏x. in conjunction with other remedies.—*Pharm. Journ.*

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**Strophanthin.**—E. Merck, of Darmstadt, announces that he now manufactures the active principle of strophanthus, namely, *strophanthin*. This is in form of a white, crystalline powder, melting at 185° C. (365 °F.), and leaving no residue when heated. The dose has been stated by British practitioners to be 0.0003 Gm. (about $\frac{1}{200}$ grain), but in the Imperial Public Hospital of Vienna it is given to the extent of 1 or 2 milligrammes ($\frac{1}{64}$ to $\frac{1}{32}$ grain) per day, usually dissolved in Aqua Laurocerasi, it being administered in divided drop doses.

**Solutions of Corrosive Sublimate,** according to Dr. Stütz, of Jena, may be prevented from decomposition by adding 7½ grains of citric acid to each quart of water employed. When this plan is followed, there is no precipitate formed with albuminoids, alcohol, or glycerin.

**Phytolacca decandra,** or poke-root, is recommended by Dr. J. V. Stevens, of Prairie du Lac, Wis., as a serviceable remedy in glandular enlargements (without cystic degeneration) and especially in goitre, and reports eight cases of the latter with seven recoveries. He not only applies the fluid extract externally, but also gives it in doses of one to five drops thrice daily. In three cases, it was sufficient to employ the remedy externally only.—*Med. Age*

THE *Sanitary Engineer* says that the ivory finish used so much for producing the colonial wood-work effect is made by using five to more coats of oil paint. With the last two, Japan varnish and ivory white are mixed, so as to give the polish. Each coat of paint is rubbed down before the next coat is applied. With the last two coats pumice stone is used for rubbing down. With cherry wood five coats will do; with pine, seven are needed to give the same finish.

**A New Asparagus.**—Some little interest has been excited by the announcement of the discovery of a new and remarkable variety of asparagus on the steppes of Akhal-Tekiz. It has not been botanically identified, but it is represented as growing perfectly wild, the stalks being nearly as thick as a man's arm, and attaining a height of five or six feet; so that one of them is said to suffice ten Russian soldiers for a meal. If the preference of experts for wild asparagus finds justification in this variety (and its flavor is described as equal to the best European kinds), asparagus-lovers may have a good time before them.—*Pharm. Journ.*

**Sulphurous Acid,** inhaled in very small quantity, is said by Dr. Mohn, of Christiania, to be a specific cure for most cases of whooping cough. His plan consists simply in the thorough disinfection, by means of burning sulphur, of the rooms, clothing, etc., used by the affected children. The children are taken out of the room, the bedding, furniture, and playthings are exposed, and two ounces of sulphur are burned for every one hundred cubic feet of space in the room. After the room has been thus exposed to the sulphurous acid fumes the affected children are allowed to return and occupy it. As a result of this treatment it is claimed that attacks of coughing are immediately alleviated, and often entirely disappear in a single night.

**Artificial Production of Pilocarpine.**—Messrs. E. Hardy and G. Calmels have succeeded in effecting the synthesis of pilocarpine. In a paper read before the Academy of Sciences, they gave a full description of their process, which consists of two steps, first the transformation of pyridine-lactic acid into pilocarpidine, and secondly, the transformation of pilocarpidine into pilocarpine. As the method is complicated and must be expensive, since gold chloride is one of the chemicals employed, the new synthesis is no doubt important scientifically, but cannot be said to be a practical process.—*Chem. and Druggist.*

**Mexican Custom Duties on Drugs.**—On July 1st, a new customs tariff came into force in Mexico, based upon somewhat less reactionary principles than the previous one, under which import duties equal to 200 per cent *ad valorem* were imposed on several articles, but still highly protective. In the new tariff, a large reduction has been made in the duties on drugs and medicines, but in many cases they still remain extravagantly high; for instance, on alkaloids and their salts not specified (431), $15 per kilo. The effect of these high duties on medicines, says the British consul at Vera Cruz, is that the poor are often unable to obtain proper medicines, and have to content themselves with cheaper substitutes; and that drugs and medicines are extensively smuggled, especially those that are taxed most heavily, the exchequer thus actually obtaining less revenue from the high duties than it would from a moderate impost.—*Chem. and Drugg.*

**Antifebrin.**—The experiments by Cahn and Hepp (who introduced the therapeutic use of this drug), as shown in the wards of the Strassburg hospital with 60 cases, prove that it may be used in doses of 5 to 15 grains, 8 grains being an usual dose. It may be given in warm water, alcohol and water, or in a capsule. Doses as large as 60 to 90 grains have caused no toxic symptoms. Most patients rarely require more than 30 grains per diem, and it is usually sufficient to give 8 grains followed by smaller doses to maintain a lowered temperature. The effects are manifested in about an hour, and a reduction of from 3 to 5 degrees is attained in as many hours, although the fall is sometimes more rapid and may reach 5 or 6 degrees in two hours. Profuse sweating, without chills, almost invariably occurs, and nausea or disturbance of the stomach was not observed. After a period of 4 to 5 hours the temperature has a tendency to rise again unless small doses are used to prevent it.—*Med. News.*

## QUERIES & ANSWERS.

*Queries for which answers are desired, must be received by the 5th of the month, and must in every case be accompanied by the name and address of the writer, for the information of the editor, but not for publication.*

No. 1,994.—**Wither's Disinfectant** (M. D.).

We have had no personal experience, as yet, with this article, but have seen various printed circulars regarding it. According to Otto Bierbach, who analyzed it in the laboratory of the School of Pharmacy of the University of Wisconsin (*Pharm. Rundschau*, N. Y., July), it contains:

| | |
|---|---|
| Mercuric Chloride | 0.207 |
| Aluminium Chloride | 0.084 |
| Zinc Chloride | 0.048 |
| Potassium Chloride | 0.087 |
| Sodium Chloride | 0.788 |
| Free Hydrochloric Acid | 0.060 |
| Water | 98.726 |

No. 1,995.—**Cement for Leather** (Canada).

The following is recommended as a very strong cement for joining leather (belting, etc.).

Soak 2 lbs. of best carpenter's glue in three lbs. of water, then dissolve by the aid of heat and keep on heating until the solution has acquired the consistence of syrup. Then add 3½ oz. of Venice turpentine and about 80 minims of liquefied carbolic acid. On cooling, this cement congeals to a gelatinous mass, which is to be cut into thin slices and spread upon tin plates to dry, which requires about 2 days. When used, the cement is melted with the addition of a little vinegar, then applied with a brush to the freshly cut and tapered end of the leather, and the joint pressed between warm iron plates for a quarter of an hour.

No. 1,996.—**Decoloring darkened Vinegars** (M. E.).

Animal charcoal will accomplish this as far as it is at all possible. Gawalovski recommends for this purpose to treat crude animal charcoal, in powder, with about three times its weight of concentrated sulphuric (not hydrochloric) acid, to dilute, after twenty-four hours, with water, then to strain and to wash the charcoal on the strainer with hot water until the latter runs off colorless and tasteless. It may then be used at once without being dried.

The vinegar is mixed with about 5 per cent of its weight of the charcoal, and the mixture stirred repeatedly during twenty-four hours. It is then filtered through flannel, and the filtrate allowed to clarify completely by settling, during about eight days, before being used.

The charcoal may be used over again, but must previously be treated with water containing soda in solution (1 part of soda for 200 of charcoal), then washed, first with water, then with very dilute acid, and again washed.

No. 1,997.—**Drumine and its Salts** ("Query").

Some time ago, Dr. John Reid announced the discovery of a proximate principle (supposed alkaloid) in an Australian species of Euphorbia, viz., *Euphorbia Drummondii* Boiss. He also described a method by which he had extracted the alkaloid. The latter was reported to have effects resembling those of cocaine, and therefore promised to be of considerable value and importance.

His description of the mode of preparation and properties, however, was affected with certain evident errors, so much so that in our first notice (February number, p. 29) we drew attention to the ambiguity. Since then we have been repeatedly asked whether any of the substance could be had in this country, but up to the present time we have been unable to refer our correspondents to a reliable source.

It is now reported that a series of experiments made in England with a sample of the principle obtained from Dr. Reid have failed to show that it produces any anæsthetic effects whatever.

No. 1,998.—**Preservation of Milk, Urine, and similar Liquids** (Laboratory).

When it becomes necessary to preserve samples of milk, urine, etc., from decomposition, at least so far that their future analysis is not interfered with, various agents may be used to accomplish this. We generally prefer chloroform or disulphide of carbon, if possible the former, directing a sufficient quantity to be shaken with the liquid to saturate it and to leave a small undissolved excess. The liquid thus treated is to be put into a bottle and tightly sealed. Of course, this does not prevent the milk from curdling; but this makes no difference, as the properties and proportions of the constituents are not altered thereby.

Allen recommends, for preserving milk, a quantity of methylic alcohol equal to twice its weight.

The necessity of using preservative agents arises often, either through samples which are to be sent by mail or express to a distant place for analysis, or when it is deemed advisable to set aside a sample of such a liquid for future reference, should any doubt arise regarding the correctness of the first analysis.

No. 1,999.—**Naphthalol** (Subscriber).

This is the name given to a compound which may be termed the salicylic ether of beta-naphthol. For some time past, a similar compound, *salol*, has been used. This is the salicylic ether of phenol, containing 38 per cent of the latter, and has been reported to be rather energetic or even poisonous in its action. It was supposed that by replacing phenol with a less irritant, but allied body, such as beta-naphthol, a safer compound could be produced. E. Merck, of Darmstadt, accordingly prepared this body, and it has been experimented with by Prof. R. Kobert, of Dorpat. It has been named both *naphthalol* and *naphthol-salol;* its composition is $C_6H_4OH.COOC_{10}H_7$.

Naphthalol is insoluble in water, odorless and tasteless, and not dissolved or affected by acids, the gastric juice, or pepsin. In doses of 5 to 8 grains daily, it does not produce noises in the ear, fulness of the head, and other disagreeable symptoms such as are sometimes produced by phenol-salol. The drug was found very useful, and at least as valuable as others, in various forms of catarrh of the bladder, especially in gonorrhœal cystitis, with alkaline decomposition of the urine.

For urethral injection, however, in gonorrhœa, there is no advantage in the use of the naphthalol over that of the ordinary salol (phenol-salol).

No. 2,000.—**Aniline Colors for Petroleum, Benzin, etc.** (Oil City).

The usual aniline colors are not soluble in petroleum or liquids allied to or distilled from it. It is, however, reported that metallic lakes or soaps may be prepared from many of these colors, which will dissolve in the liquids above-mentioned. Dr. A. Mueller-Jacobs, of New York, the originator and patentee of "polysolve," has obtained a patent on a process of which the following is an outline:

A resin soap is prepared in the usual manner by saponifying rosin with soda and carbonate of sodium. To the solution of the soap is added an aqueous or alcoholic solution of a basic aniline color, such as fuchsin, safranin, chrysoidin, aniline-violet, malachite-green, etc., and afterwards a solution of an aluminium or zinc salt, very gradually and in small portions. This will produce a colored precipitate (the tint varying, of course, according to the nature of the coloring matter), which is thoroughly washed with lukewarm water. These lakes may be either used directly for printing cotton fabrics, wall-paper, or tapestry, or they may be dried at a temperature not exceeding 50° C. (122° F.). The powder thus obtained is soluble in benzol and similar solvents, and is said to be specially useful for coloring varnishes.

No. 2,001.—**Hair Restorative** ("Richelieu").

This correspondent asks for a receipt of a "hair restorative of the sulphur and lead kind." He says he has several, but they are not satisfactory.

We would refer our reader in the first place to the last number of this journal, page 154, where he will find a number of practical formulas, none of which, however, contains any lead. To judge from the date of his letter, he had not received his copy of this number when he wrote it.

*Lead hair dyes*—we judge that our correspondent did not actually mean restoratives of hair, but restoratives of the *color* of the hair—*should be warned against* whenever possible. However, if one *must* be supplied for some special reason, a good combination is said to be the following:

| | |
|---|---|
| Dry White Lead | 2 parts |
| Litharge | 1 part |
| Slaked Lime | 3 parts |

Mix the solid ingredients, which should be in fine powder, and keep the mixture in glass bottles.

When it is to be used, take out a sufficient quantity, make a thick paste by using a mixture of equal volumes of water and glycerin, and apply the paste to the hair by means of a small brush, so that the hair is completely covered. Absorption of lead will take place through the surface of the hair, and at the same time there will take place a formation of sulphide of lead, the quantity depending upon the time. Four hours are usually required to produce light brown hair, about eight hours for dark brown, and twelve hours for black. When the proper tint has been reached, the hair must be well washed with water, and when dry, anointed with some oil or fat. The powder applied to the hair will not be absorbed if it becomes dry; hence a little glycerin is mixed with it. Should it dry up nevertheless, a new layer must be applied and some impervious material wrapped around the head.

A preparation of this kind should never be furnished by an intelligent and conscientious pharmacist, without warning the purchaser against the possible consequences.

No. 2,002.—**Pills of Warburg's Tincture** (Baltimore).

Some manufcaturers put on the market "Pills of *Extract* of Warburg's Tincture." Now Warburg's tincture

contains camphor and several other ingredients, which will be injured by being subject to evaporation. To prepare an extract from the tincture, therefore, is likely to dissipate some valuable constituents, and at the same time it is an expensive process, as the tincture is quite dilute, and but a small amount of actual extract will be obtained from a large volume of tincture. There is no special necessity, in our judgment, of first preparing an *extract*. The drugs themselves may be employed in the same quantities as they are directed for the tincture.

The relation between the tincture and the pills of the tincture is usually given so that 1 fluidrachm of the former is said to be equivalent to a 5 grain pill, or to "5 grains of the Extract of Warburg's Tincture."

We shall first quote the formula for Warburg's Tincture as given in the Draft of the National Formulary :

| | |
|---|---|
| Rhubarb | 448 grains. |
| Angelica Seed | 448 " |
| [Opium | 16 " ] |
| Elecampane | 224 " |
| Saffron | 224 " |
| Fennel | 224 " |
| Gentian | 112 " |
| Zedoary | 112 " |
| Cubeb | 112 " |
| Myrrh | 112 " |
| White Agaric | 112 " |
| Camphor | 112 " |
| [Chalk | 224 " ] |
| Sulphate of Quinine | 1,280 " |
| Diluted Alcohol | to make 1 gallon. |

The opium may be omitted; it is only put in the formula for the purpose of giving an equivalent for the Confectio Damocratis which contains about the above quantity of opium in the amount directed to be taken by Warburg for 1 gallon of the tincture. The chalk does not enter into solution, and may therefore be omitted. Now 1 gallon of tincture represents 1,040 fluidrachms. If a pill mass is to be prepared from the constituents above named, so that each fluidrachm of the tincture will be represented by 5 grains, the total weight of the pill mass will have to be 5,120 grains. If we add together the whole of the constituents above given for 1 gallon of the tincture, omitting the chalk only, we obtain only 3,536 grains, leaving a balance of 1,584 grains to be made up by excipient and some indifferent powder. In practice, extract of gentian will probably be found most suitable. Whether the pills are exactly 5 grains or a little less in weight will make no difference. Our advice, therefore, is to prepare the pills simply by taking the drugs in fine powder, omitting the chalk, and to make them into a pill mass with extract of gentian, the quantity of drugs above given, and thus made into a mass to make 1,040 pills.

No. 2,003.—**Fulminating Mercury** (U. S. A.)

There are several methods for preparing this very dangerous explosive, all of which are perfectly safe for those who have the requisite experience and use the necessary caution in the preparation. It is, however, a risky matter for those who have not acquired the experience to undertake the operation on any but a small experimental scale, until every phase of the operation is thoroughly studied, and every condition of temperature, dilution, etc., is known, insuring safety to the operator. Cautioning you, therefore, against a reckless experiment on a large scale, and advising you to proceed at every step in such a manner that no injury can accrue either to yourself or to others, we append a process which is now regarded as one of the least dangerous ones. At least, no accident has been reported to have happened in factories where this has been employed.

55 parts (by weight) of nearly absolute alcohol (98.5 per cent by weight; spec. grav. 0.798) are poured into a large flask, with wide neck, the alcohol is warmed to and kept at a temperature between 25° and 30° C. (77°–86° F.); and to this are added, very gradually, 5 parts of pure metallic mercury previously dissolved in 60 parts of nitric acid of specific gravity 1.400. The flask should have a capacity of at least three times that of the volume of alcohol introduced. The mercurial solution may be added warm (up to a temperature of about 60° C. or 140° F.) if its quantity is small. With larger quantities a lower temperature will suffice, but if the reaction does not readily begin, *gentle* heat must be applied to the flask until gas bubbles are evolved, when the heat should at once be withdrawn. The neck of the flask should be provided with a well-fitting wide glass-tube leading into the open air, care being taken that the escaping vapor shall not come in contact with a flame, as this would result in a violent explosion. The fulminating mercury is gradually deposited during the operation. When it is apparently completed, or in case reddish, transparent vapors should make their appearance during the reaction (which would indicate an extension of the latter beyond the desired limit), a quantity of water equal to the volume of alcohol used is poured into the flask. The grayish-white fulminate is then transferred to a number of filters and washed in such a manner that none of them can run dry. When the washing has been continued long enough, the contents of each filter are spread out separately, in suitable distances from each other, to dry.

Fulminating mercury has been known to explode from very trivial concussions, though it is not nearly as dangerous in this respect as chloride or iodide of nitrogen. If several samples of any of the latter are placed near each other on a solid support, or on the ground, and one of them is made to explode, the concussion is instantly communicated also to the other, causing this to explode likewise. This may be avoided by laying the samples upon thick wads of loosely picked cotton or tow, which greatly weaken the force of concussion. The same precaution may be used in the case of fulminating mercury.

No. 2,004.—**Gelseminum or Gelsemium?** (L. H. W.)

We are in receipt of a letter from a western correspondent, who questions the correctness of the spelling *Gelsemium*, as against *Gelseminum*, which one of us has had occasion recently to point out as an error (in *Latin Titles of Druggists' Shop Labels*, published by Whitall, Tatum & Co.). He adds that the word is taken from the Italian *gelsemino* [*gelsomino* is the usual term], and that in the derived words, namely: English, *jessamine*, French, *jasmin*, and Spanish, *jazmin*, the letter *n* is retained, while the balance of the word varies.

In reply we would say, that in following the spelling *Gelsemium*, we merely comply with the universal rule, applying both to systematic names in natural history, and to family names of persons, viz: to preserve that spelling which will insure the most certain identification of the individual. There are certain inflexible rules in botanical nomenclature which cannot be infringed upon without running the risk of causing confusion.

The word *gelseminum* or *gelsemium* is of mediæval origin. There is hardly any doubt that it has originated from the Greek *ἰασμή*, or *ἰάσμινον*, which is, however, itself stated (even by ancient writers, see Dioscorides, 1, 76) to be derived from the Persian. This statement is correct, as it is even in modern Persian named *yâsemîn* (also more briefly *yâs*, or *yâsim*), though the original meaning or derivation of the Persian word (from which the Arabs have borrowed it) is unknown. In mediæval times, as long as systematic botany did not exist, the generic name *Jasminum* was applied only to European plants having more or less resemblance to the common jasmine (*Jasminum officinale* L.). With the more critical discrimination of characters, however, it gradually became evident that one or more plants having up to that time been included in the genus *Jasminum* should be separated from it. Accordingly, in 1741, Catesby in his Natural History of North Carolina, etc., established the genus name *Gelseminum* for the American jessamine and this name was subsequently adopted by Pursh (Flora Americæ Septentrionalis, 1814), Elliott (sketch of the Botany of South Carolina, 1821), and even a few more recent authors, such as Bartling ("Ordines Naturales," 1830), Grisébach ("Observationes de Gentiaracearum fam. characteribus," 1836), and Darby ("Flora of the Southern U. S."). Even Aiton, who first characterized the American plant, and whose name is attached to its present title, called it *Gelseminum sempervirens* (in his Hortus Kewensis). Previously to the last-named author, however Jussieu (in Genera Plantarum, 1789), had given a more strict and rigorous characterization of the American plant, involving so much difference, that he considered it necessary, for the sake of avoiding confusion, to choose a new genus name, for which he selected *Gelsemium*, differing from the former term only by the omission of the *n*. The genus *Gelsemium*, as originally defined by Jussieu, has since then been generally recognized *as such* and the spelling retained by most authorities. By common consent, the classification and orthography adopted by Bentham and Hooker in their "Genera Plantarum" is now usually followed by nearly all botanists. They also adopt the spelling *Gelsemium* ("Gen. Plant.," II, 789). So does Gray ("Synoptical Flora of N. A.," II.1, 107). There are only three species of "Gelsemium" known, two of which belong to Eastern Asia, while the third is the American species. After Jussieu, the spelling *Gelsemium* was recognized and adopted by Richard (in Michaux, "Flora Boreali-Americana," 1803), Persoon ("Synopsis Plantarum, seu Enchiridion," 1805), Sprengel (1817), Nuttall (1818), Reichenbach (1828), G. Don (1837), A. Jussieu (1849), Miquel (1856), Chapman, and many others.

Since, therefore, every botanical authority of the present day uses the spelling *Gelsemium*, and since a scientific term, purposely introduced and once adopted, should remain unaltered, irrespective of any etymological considerations, the above is the only way in which the word should be written.

No. 2,005.—**Becchi's Test for Cotton-Seed Oil in Olive Oil** ("Georgia" and S. O. C.).

We have several times already given an account of this test in our journal. In fact, the test was first made known by us, namely in NEW REMEDIES, 1883, page 314, it having been communicated to us by Mr. A. Janssen, of Florence. Since then, this test has been variously criticised, though mostly in a favorable manner. At one time the Italian government, which is vitally interested in the question of the purity of olive oil exported from Italy, had recommended as the best general test of olive oil the well-known elaidin reaction, for which detailed conditions

were given. But it was impossible, by means of this, to recognize the most dangerous adulterant of olive oil, viz., cotton-seed oil, unless it was present in considerable quantity or was entirely substituted for olive oil.

A new commission had meanwhile been appointed which made a thorough study of Prof. Becchi's test, examining for this purpose a large number of samples, not alone of olive olive of known purity, but also of mixtures of it with cotton-seed oil. The commission rendered a report in the beginning of this year, and the following is an abstract of it (after *Amer. Journ. Pharm.*).

The method of Professor Becchi, as used by the commission, and with successive modification by the author, consists in the subjection of a sample of the suspected oil to the heat of boiling water, after first having added an alcoholic solution of silver nitrate, and amylic alcohol and oil of rape, in the manner and proportions hereinafter indicated.

Take 1 grain of crystallized silver nitrate and dissolve in the smallest possible quantity of water (about 1 C.c.) and add 200 C.c. of alcohol (96°). The addition also of 20 C.c. of sulphuric ether is a good one, in that it makes the reagent better miscible with the oil to be examined, but it is not necessary. On the other hand, prepare a solution composed of 85 parts of amylic alcohol and 15 parts of oil of rape-seed. These reagents should be made as needed and not kept on hand for any length of time.

Now, to apply the test, Professor Becchi takes 10 C.c. of the oil to be examined, adds 1 C.c. of the alcoholic solution of silver nitrate and then from 8 to 10 C.c. of the mixture of amylic alcohol and oil of rape, agitating strongly and then heating on a water-bath for five or ten minutes.

In the case of pure oils, the color remains the same as it was, after the addition of the reagents. In the event that sophistication has been practised with cotton-seed oil, there will be produced a brownish color, or turbidity, of a varying grade, from a very light-brown to a deep maroon or black, according to the quantity of cotton oil present. With these data furnished by Professor Becchi, and after having assisted at experiments made by him in support of his method, the commission instituted a series of long and diligent experiments, numbering over two hundred, in the chemical, biological, and hygienic laboratory of the Royal Institute, adhering strictly to the rules as laid down, measuring exactly in each instance the quantities of oil and reagents, and using tubes of equal diameters or, in one word, employing the same conditions in all experiments, in order to render the result truly comparative.

The oils used were furnished in part by Professor Becchi, and in part by this commission, looking especially for those olive oils of whose genuine nature there could be no possible doubt, and then, secondly, taking good olive containing cotton oil. Several of the olive oils were from other countries (Spain, France, Tunis, Dalmatia, and Malta, etc.), but the greater number were from various parts of Italy. Some were recent and some old, others pure, of 1 a, 2 a, 3 a, quality, and others were rancid.

In order to ascertain if the reaction outlined by Becchi was peculiar to cotton-seed oil addition alone, the commission found it necessary to extend their experiments upon other oils, vegetable and animal, alone and admixed with pure olive oil.

Regarding other foreign oils it may at once be stated that no change was produced by the reagent in their presence, except to a slight extent in some samples of rape-oil; but the characteristic reaction was easily obtained by mixing each oil previously with 20 per cent of cotton-seed oil.

The commission recommends the test for general adoption as the best that is so far known.

No. 2,006.—**Cold Storage without Ice Machines** (K.).

We have received the following query, which we are at the present unable to answer satisfactorily:

"Can you give us any information regarding a reported discovery of making cold storage without using ice machines?"

We would suggest to our correspondent to furnish details as to the nature of the article to be cooled or to be stored cold; also any reports (even though second-hand) he may have had regarding the process.

If any of our readers can answer the query, we would be very much obliged.

No. 2,007.—**Gymnema Sylvestre** (J. M. C.).

This subscriber asks where he may obtain the plant *Gymnema sylvestre*, regarding which we published a note on page 109 of our current volume. It is reported that when chewed it benumbs the tongue and palate, so as to render them incapable of appreciating any *sweet* substance. This property has been known, however, for a long time.

The plant is a native of India, occurring chiefly in the Ghauts, in Concan, and in the Goa territory. We have no doubt that any desired quantity could be obtained through one of the Bombay drug houses, the best method for our correspondent being probably to give a definite order of importation to one of the large New York houses. To insure a correct execution, it might be advisable to order, for instance, as follows: "……pounds of the root [or leaves] of Gymnema sylvestre; Mahratti "vâ-kandî" (see Dymock, "Materia Med. of Western India," 2d edition, page 521)."

By the way, some authorities state that the peculiar effect upon the gustatory nerves which the chewing of the plant is said to produce is only inherent in the *fresh* plants.

No. 2,008.—**Corn Salve** ("Richelieu").

We do not know the composition of the proprietary corn-salve mentioned by our correspondent. A good application, of at least equal efficacy, however, is the well-known Indian hemp and salicylic acid collodion, recommended some years ago by Gezow (NEW REMEDIES, 1882, 85). The formula is:

| | |
|---|---|
| Salicylic Acid | 5 grains. |
| Extract of Indian Hemp | 30 " |
| Collodion | 5 fl. dr. |

Dissolve by agitation.

Another compound which has acquired some reputation is that known as Baudot's Corn Plaster:

| | |
|---|---|
| Resin Cerate | 40 parts. |
| Galbanum Plaster | 40 " |
| Verdigris | 15 " |
| Turpentine | 5 " |
| Creasote | 3 " |

The application of the corn collodion is to be made at least once daily, best in the evening, after a foot-bath, and after a careful paring of the indurated surface, so far as possible.

In the case of the plaster the same process may be pursued.

No. 2,009.—**"Test for Kaolin"** (L.)

The query of our correspondent is rather indefinite. He says he has searched for a "test for kaolin" but so far in vain. If he will tell us whether he wants a test to recognize the presence of kaolin in some compound (perhaps in pills of permanganate of potassium), or whether he wants to examine the relative purity of any special kind of kaolin, we shall be better able to answer. Assuming, for the present, that his object is that first named, we would recommend that he first extract the substance or compound with the usual solvents (water and acids) then to mix the insoluble residue with carbonate of potassium and carbonate of sodium, and to fuse in a crucible. The insoluble silicate of aluminium (which is really the nature of kaolin proper) is thereby rendered soluble, and converted into silicate and aluminate of the alkalies. The two constituents are then to be searched for and determined in the usual manner, for which we must refer to the text-books on analysis. By quantitative analysis, the relation of the alumina and silica, finally obtained in a dry state, in the case of kaolin will be about in the proportion of 102 of alumina to 120 of silica.

No. 2,010.—**Solubility of Antifebrin** (Dr. B.).

Antifebrin, the proper chemical name of which is acetanilide, is not much soluble in water, of which it requires 189 parts at 6° C. (43° F.). Practically, it is assumed that antifebrin requires 200 parts of water for solution. Of alcohol, it requires a little less than 4 parts for solution. A saturated solution will contain about 15 grains in a fluidrachm. Ether dissolves it readily, but is of no practical value as a solvent, as an ethereal solution is not fit to be administered. A saturated alcoholic solution is miscible with glycerin without precipitation. And if equal parts of the alcoholic solution and of glycerin are mixed, a small amount of water may be incorporated without causing any separation. But if the water amounts to about two-thirds of the original volume of either of the components of the mixture, the liquid, though at first appearing be quite limpid, will soon become filled with minutes spangles of antifebrin.

When the latter separates from its solution, it does not form an impalpable powder, but quite good-sized shining crystalline scales. Hence, it is not possible to suspend the substance in a mixture in as fine a condition as, for instance, camphor, by mixing its alcoholic solution with a watery liquid. It may, however, be suspended by making a regular emulsion.

Antifebrin is best given in substance, or mechanically mixed with wine, syrup, or elixir.

No. 2,011.—**Prescription Difficulty** (O., Mass.).

The following prescription has been sent to us with the request to state whether it is written correctly:

| | |
|---|---|
| ℞ Acidi Salicylici | gr. 80 |
| Potassii Acetatis | q. s. for solution |
| Glycerini | fl. ℥ ½ |
| Aquæ | q. s. ad fl. ℥ 4 |

S. Two teaspoonfuls every 2 hours. Hold in throat before swallowing.

This is a mixture originally used and prescribed in the service of the public hospitals of the city of New York. The quantity of acetate of potassium is given as 160 grains in the original formula, for the quantity of mixture above directed.

We cannot say that the prescription has been incor-

rectly written. The physician evidently had forgotten the amount of acetate of potassium, and as this is introduced into the formula not for its own therapeutic effect, but merely to act as a solvent for the salicylic acid, he was quite justified in leaving the quantity to the discretion of the apothecary, the intention being evidently that not more should be used than would be necessary for solution. When salicylic acid and acetate of potassium come together in presence of water, salicylate of potassium and free acetic acid are produced by the decomposition of a part, at least, of the acetate.

No. 2,012.—**Prescription Difficulty.**

"Novice" sends us several prescriptions, regarding which he desires advice. Among them we find some very bad spelling, no doubt due to the illiteracy of the prescriber. We shall however, not waste space on this feature, but give the correct names of the several ingredients in full, except where the original spelling requires a commentary:

| | |
|---|---|
| 1. Acidi Salicylici | ℥ ij. |
| Sodii Bicarbonatis | ℥ i. |
| Olei Gaultheriæ | ℥ i. |
| Alcohol | ℥ i. |
| Syrupi | ℥ ij. |

"Mix alcohol with the oil of wintergreen, then add to the mixture.

"S. A teaspoonful three times a day."

Regarding this, our correspondent thinks it should be dispensed in powder form rather than in a fluid mixture, and that the prescriber ought to have omitted the liquids. He adds the query: "Can it be combined in a fluid without effervescing or bottled without exploding?"

"Novice" is informed that the acid and bicarbonate cannot be combined without effervescence. The patient who would have to take the two substances in powder, would most seriously object to have the effervescence take place in his stomach. No! the prescriber evidently meant that they should combine to a soluble salicylate of sodium. Rub the two substances together in a mortar and gradually add the syrup, previously warmed. The effervescence will soon be over. Then introduce the solution (which may not be quite clear, as it will probably contain a little undissolved salicylic acid) into a bottle, and add the alcohol in which the oil had been dissolved. Some of the oil will separate on standing; hence a "shake" label is to be put on the bottle. The oil is not put in merely as a flavor, but as an active remedy, as it contains methyl-salicylic ether, likewise of great help in inflammatory rheumatism.

| | |
|---|---|
| 2. Potassii Sulphidi | ℥ i. |
| Aquæ Camphoræ, | |
| Aquæ "Dilueris" | āā ℥ viij. |

M. S. Make a wash to be used three times daily.

We are asked what the last item means. Answer: nothing. It is not Latin nor anything else. It could not well be miswritten for "Destillatæ," as there would be no sense in combining distilled water with a solution of sulphide of potassium. Perhaps the word in the original has been misread.

| | |
|---|---|
| 3. Potassii Bromidi | gr. clx. |
| Chloral | gr. clx. |
| Tinct. Valerianæ | ℥ iij. |
| Syrupi Tolutani | q. s. ad ℥ ij. |

M. S. Teaspoonful every six hours in a tablespoonful of water.

The taste of this was so severe and burning that the patient was in great distress every time it was given.

In this case, there being only ten grains each of the bromide and chloral to a dose, we do not understand why the taste should have been so burning. There is hardly enough alcohol in the tincture to decompose the chloral hydrate and convert it into alcoholate. The latter would float on top. We think the remedy is to dilute the dose with some mucilaginous or syrupy vehicle.

No. 2,013.—**Prescription Difficulty** (Dakota Pharmacist).

This subscriber sends the following communication:

GRAND FORKS, DAK., June 6th, 1887.

I have had occasion to prepare the following several times lately:

| | |
|---|---|
| ℞ Sodii Bicarb | ʒiv. |
| Bismuth Subnit | ℥ iij. |
| Mist. Cretæ | ad ℥ ij. |

M. Sig. Two teaspoonfuls every four hours.

The person for whom it was prepared complained a couple of times of its blowing the cork out with force and the liquid flowing out in thick froth.

This morning I put up the mixture and left it standing on show case: in ten minutes cork was out and contents out. The mixture had up to then been made with Mistura Cretæ U. S. P. 80, freshly made for each mixture. I put it up again with Mist. Cretæ U. S. P. 70 (also fresh), put it in a 4 oz. bottle, but the bottle had only been put up about half an hour when it again blew the cork out.

Can you tell me what the matter is? Is it due, as I think, to some decomposition of the bicarbonate of soda?

We do not think that the bicarbonate of sodium was the cause of this, but that the subnitrate of bismuth had an acid reaction. You can easily ascertain this by washing a portion with water and testing the latter with litmus. You should permit the mixture, after being made, to remain in an open vessel or bottle for some time before sending it out corked. If you find your stock of subnitrate of bismuth to have an acid reaction, you might wash the whole of it with a dilute solution of carbonate of sodium, then with water and dry it again.

No. 2,014.—**Proprietary Articles** (H. W. B.).

We regret to say that the exact composition or mode of preparation of the Maria Farina Cologne, as well as that of the other two proprietary articles named, is not known. Many formulæ have been published for making cologne, and you will find many in our previous issues. But the peculiar aroma of any special proprietary cologne is not likely to be imitated exactly, as each manufacturer uses some special methods or combinations which are known only to him.

No. 2,015.—**Peter's and Rigney's Acetometers** (supplement to Query No. 1,961 in our July number).

Mr. Edward B. Chapman, of New York, informs us that the instrument which we described in our July number, sub query 1,961, is probably Broker's acetometer and not Peter's, as the latter is supplied with a bottle of *solution of ammonia* colored with *litmus*. Peter's, our informant states, is usually employed about here, but it is very unreliable, as the solution is liable to great variation of strength owing to evaporation.

We had received the instrument and test solution as "Peter's," but are obliged to our correspondent for his correction. Of course, there is very little difference in the tubes, the chief difference being in the liquid which, in the case of the acetometer in our possession, is a solution of soda tinged with phenolphthalein.

Mr. Chapman draws our attention to the acetometer put out by Mr. W. J. Rigney, the official inspector of vinegar at New York City. This consists of a tube similar to Peter's, but it is so graduated that it shows the percentage of acetic acid. It is accompanied by a bottle of solution of soda, and some phenolphthalein solution. The percentage, as shown by this instrument, can be easily converted into grains as follows:

| | |
|---|---|
| Per cent multiplied by 8.9 | = grains "Peter's." |
| " " " " 8 | = grains "Potash." |
| " " " " 6.72 | = grains "Soda." |

No. 2,016.—**Solution of Citrate of Magnesium** (J. W.).

The cause of a precipitate forming in the solution of citrate of magnesium is the formation of a basic salt, which is comparatively little soluble. This precipitate is apt to form when the quantity of citric acid is insufficient.

If you will use the process directed in the last U. S. Pharm. (1880), we think you will meet with no more difficulties.

Regarding the other part of your query, we have reserved it for future answer.

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**Stained Teeth** may be bleached with hydrogen peroxide. [The addition of powdered pumice, as suggested in some of our exchanges, is apt to prove harmful to the enamel.] The mouth should be well rinsed after the application, and the hydrogen peroxide should be rather dilute.

**For Blistered Feet.**—Salicylic suet is used in the German army as a remedy for foot-sores instead of the salicylic powder formerly employed. It is composed of two parts of pure salicylic acid and ninety-eight parts of the best mutton suet.—*Med. and Surg. Rep.*

**The Cocaine Habit.**—In the *British Medical Journal* are reported two cases of chronic cocaine poisoning. The patients were a man and wife who had formerly been addicted to opium, and who had taken cocaine as an antidote. They commenced with small doses, but finally took daily 2.5 grams hypodermically. The prominent symptoms were incoherence of ideas and optical delusions. They saw on their hands, on the beds and walls, small spots and worms of all forms. Complete recovery followed the discontinuance of the cocaine.

**Antiseptic Mouth-wash.**—One of the greatest living authorities upon buccal bacteriology, Dr. Miller, finds that, by using the following mixture, he could completely sterilize the mouth, cavities in carious teeth, etc.:—Thymol, 4 grains; benzoic acid, 45 grains; tincture of eucalyptus, 3½ fluidrachms; water, 25 fluid oz. The mouth is to be well rinsed with this mixture, especially before going to bed. For retail, a mixture of water and spirit is required for a presentable preparation, and it should be made much stronger, say 5, instead of 25 oz., and diluted when required.—*Chem. and Druggist.*

## FORMULAS.

### Toilet Vinegar.

| | |
|---|---|
| Oil of Bergamot | 30 grains. |
| " Lemon | 30 " |
| " Rose | 8 drops. |
| " Neroli | " |
| Benzoin | 75 grains. |
| Vanillin | 15 " |
| Acetic Acid, glacial | 240 " |
| Deodorized Alcohol | 1 pint. |

Digest 14 days, and filter.

### Violet Powder, for Sachets.

| | |
|---|---|
| Orris Root, powdered | 1 lb. |
| Musk | 8 grains. |
| Vanillin | 30 " |
| Oil of Rose | 25 drops. |
| " Petit grain | 160 grains. |
| Cologne | 4 fl. oz. |

Mix intimately.

### White Toilet Powder.

IDENTICAL with that sold by Paris perfumers, very adhesive and quite innocuous)

| | |
|---|---|
| Zinc Carbonate ("zinc-white") fine, levigated | 770 grains. |
| Venetian Talc | 770 " |
| Magnesium Carbonate | 770 " |
| Oil of Rose | 20 drops. |
| " Orris (melted) | 20 drops. |

Mix them.

### Pink Toilet Powder.

| | |
|---|---|
| White Toilet Powder | 3000 parts. |
| Carmine | 1 part. |

E. SOXHLET in *Neueste Erfind. und Erfahr.*

### Remedies for Insect Bites.

1. DR. MYLIUS recommends pencils made of

Carbonate of Ammonium
Camphor and
Boric Acid.

The source from which we take this does not give the proportions; but since the ammonium salt is the chief active constituent, it should be present in largest quantity. The camphor acts as an anodyne, the ammonia neutralizes the acid of the insect-bite, and the boric acid acts as a disinfectant. The ingredients may be mixed perhaps in the following proportion:

| | |
|---|---|
| Ammonium Carbonate | 90 |
| Camphor | 2 |
| Boric Acid | 8 |

As a binding material, a dilute mucilage may be employed.

2. Bernbeck recommends a solution of

| | |
|---|---|
| Salicylic Acid | 1 part. |
| Flexible Collodion | 19 parts. |

This is reported to be even more effective than the ammonia treatment.

The same author also recommends a mixture of

| | |
|---|---|
| Corrosive Sublimate | 1 part. |
| Flexible Collodion | 1000 parts. |

3. Other mixtures besides those above mentioned have also been proposed or used. So, for instance, a mixture of

Carbonate of Ammonium
Camphor, and
Menthol

or Naphthalin in place of either the Camphor or Menthol.

Such pencils, put up in a neat case, and occupying not more space than an ordinary short lead pencil, might be a good article for sale during the mosquito season.

### Dental Soaps.

MILLER gives the following directions for preparing *dental soaps*. They should be neutral or have a slight alkaline reaction:

1. Magnesium Carbonate 1 part.
Orris Root, powdered 1 "
Talc 1 "
Castile Soap, white 1 "
Oil of Peppermint q. s.

Make a mass of the consistence of paste, with the aid of mucilage.

2. Precipitated Carbonate Calcium 100 parts.
Orris Root, powdered 5 "
White Sugar 4 "
Myrrh, powdered 2
Glycerin or Honey q. s.

Make a mass of the consistence of paste.

**Dr. Cleary's Asthma Powder** is stated to be made according to the following formula:—

| | |
|---|---|
| Pulv. Stramonii fol | 30 parts. |
| " Belladonna fol | 30 " |
| " Potassi Nitratis | 5 " |
| " Opii | 2 " |

M. A little of this is to be burnt and the fumes inhaled.—*Chem.* and *Drugg.*

### Salol Mouth Wash.

| | |
|---|---|
| Salol, pure | 25 parts. |
| Oil of Peppermint | 5 " |
| Cloves, ground | 10 " |
| Cinnamon, ground | 10 " |
| Staranise, ground | 10 " |
| Cochineal, powdered | 5 " |
| Alcohol | 1000 " |

Digest the Cloves, Cinnamon, Staranise, and Cochineal in the Alcohol for a week, add the Oil of Peppermint, and filter. Then dissolve in it the Salol.

For use, add enough of the solution (about 30 drops) to a tumblerful of water to give it a decidedly milky appearance.—*Med. Zeit.*

### Crystallized Pomade.

| | |
|---|---|
| Olive Oil | ix. |
| Spermaceti | i. |
| Oil of Bergamot | i. |
| " Cloves | 3 drops |
| " Cinnamon | 5 " |
| " Neroli | 5 " |

Dissolve the spermaceti in the oil by the aid of heat. Place the bottles up to the neck in water as hot as they will bear. Then fill with the pomade adding the perfume immediately before pouring out. Cover the bottles as soon as they are filled, and do not disturb them until the pomade is perfectly solid. It may be colored with palm oil or oleaceous annatto coloring. The latter can be made by digesting 1 oz. of the seeds in 8 oz. of olive oil.

### Tests with Various Insecticides.

PROFESSOR RILEY, Entomologist of the United States Department of Agriculture, has been experimenting upon the relative values of insecticides. His results show that ice water is not reliable as a remedy against the cabbage worm, while salt and water and saltpetre and water also failed. One part carbolic acid to 100 parts of water injured the leaves and did not kill the worms under the leaves. Pyrethrum, 1 part, and flour, 3 parts, dusted on the plants killed three-fourths of worms. Kerosene emulsion destroyed 80 per cent of all worms exposed to it, but buckwheat, ammonia, powdered alum, copperas water, carbolized lime, black pepper, tar water, and tomato water were failures. Copperas, 4 oz. to a quart of water killed all the worms. Tar water and Wolf's soap drove the margined blister beetles from beets, but they returned. One part carbolic acid and 64 parts water drove ants away permanently. Kerosene emulsion destroyed yellow-necked caterpillars. Two applications of a saturated solution of salt killed lice on lettuce. The woolly aphis on apple trees was destroyed by kerosene emulsion, which, as the results show, is about the best insecticide, but has the drawback of imparting its odor to cabbage leaves.

### Salicylic Cold Cream.

| | |
|---|---|
| White Wax | 3½ av. oz. |
| Spermaceti | 3½ " |
| Oil of Almond (expressed) | 21 " |
| Distilled Water | 3½ " |
| Glycerin | 3½ " |
| Salicylic Acid | 154 grains |
| Cumarin | 1 grain |
| Oil of Rose | 10 drops |
| " Neroli | 10 " |
| " Bergamot | 10 " |
| " Wintergreen | 5 " |
| " Ylang | 1 drop |
| Tincture of Musk (1 : 10) | 3 drops |

Prepare in same manner as cold cream or Unguentum Aquæ Rosæ (U. S. Ph.), but add the salicylic acid last, previously triturating it to a smooth paste with glycerin.—EUG. DIETERICH.

### Toothache Pellets.

| | |
|---|---|
| Cocaine Hydrochlorate | 16 grains |
| Powdered Opium | 64 " |
| Menthol | 16 " |
| Althæa, powdered | 48 " |
| Mucilage of Acacia | 9 " |

Make into one-half grain pills and keep in well-stoppered vials. For use, one of these is to be inserted into the hollow tooth.—EUG. DIETERICH.

### Remedy for Catarrh in the Head.

RABOW recommends the following very highly:

| | |
|---|---|
| Roasted Coffee | 50 parts |
| Menthol | 2 " |
| Sugar | 50 " |

Triturate them together to a fine powder.

To be used as a snuff.—*Deutsch. Med. Wochensch.*

### Temperature of some Freezing Mixtures.

F. FOL communicates to the *Chemiker Zeitung* the results of some experiments made to ascertain the fall of temperature caused by mixing certain liquids, previously cooled to 0° C. (32° F.). Among them are the following:

| | Temperature produced. |
|---|---|
| 1. Alcohol, ethylic, 100 Gm. Snow 100 Gm. | − 17.5° C. (ab. + 1° F. |
| 2. do. with subseq. addition of Snow 100 Gm. | − 18.5° C. (ab. − 1° F. |
| 3. Alcohol, ethyl 100 Gm. Water 100 " Snow 100 " | − 15° C. (+ 5° F. |
| 4. Alcohol, ethyl 10 Gm. Water 10 " Snow 100 " | − 8° C. (17.6° F.). |
| 5. Methylic Alcohol, 100 Gm. Snow 100 Gm. | − 20° C. (− 4° F.) |
| 6. Alcohol, ethyl 100 Gm. Methylic Alcohol 100 " Snow 200 " | − 22° C. (−7.6° F.) |
| 7. Glycerin 100 Gm. Snow 300 " | − 20° C. (−4° F.). |

**Lanolin and Sulphur.**—Lanolin absorbs, according to M. Rohart, about 110 times its own volume of hydrosulphuric acid gas. The sulphurated product may be easily saponified, a good soap being formed even in the cold within less than one hour. In view of the penetrating effects of lanolin and the usefulness of sulphur in skin diseases, the above compound is likely to be of great practical benefit.—*After Brit. and Colon. Drugg.*